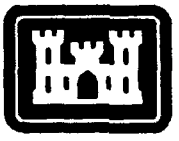
ENVIRONMENTAL ASSESSMENT

DREDGED MATERIAL THALWEG PLACEMENT SITE

MISSISSIPPI RIVER MILES 561.0 - 561.4

ISLAND 241, POOL 12

OCTOBER 1992



US Army Corps
of Engineers
Rock Island District

DEPARTMENT OF THE ARMY
ROCK ISLAND DISTRICT. CORPS OF ENGINEERS
CLOCK TOWER BUILDING – P.O. BOX 2004
ROCK ISLAND. ILLINOIS 61204-2004

REPLY TO
ATTENTION OF

CENCR-PD-E

ENVIRONMENTAL ASSESSMENT

DREDGED MATERIAL THALWEG PLACEMENT SITE
MISSISSIPPI RIVER MILES 561.0-561.4
ISLAND 241, POOL 12

OCTOBER 1992

ENVIRONMENTAL ASSESSMENT

DREDGED MATERIAL PLACEMENT SITE
MISSISSIPPI RIVER MILES 561.0-561.4
ISLAND 241, POOL 12

TABLE OF CONTENTS

TABLE OF CONTENTS (Cont'd)

List of Tables

List of Plates

List of Appendices

ENVIRONMENTAL ASSESSMENT

DREDGED MATERIAL THALWEG PLACEMENT SITE
MISSISSIPPI RIVER MILES 561.0-561.4
ISLAND 241, POOL 12

BACKGROUND INFORMATION

Island 241, located approximately midway between Lock and Dam 12 and Galena, Illinois, has recently become a significant shoaling area. As a result, dredging has been needed to keep that portion of the channel open for navigation. Since 1984, this area between River Miles (RM's) 561.7 and 562.3 has required two dredging events (1984 and 1990). Over that time, sedimentation in this area has necessitated the removal of over 150,000 cubic yards (yd^3) of dredged material, with each dredging event averaging approximately 76,000 yd^3. The location that is currently in need of dredging is approximate RM's 561.8-562.2 (plate EA-1).

A problem associated with all locations requiring chronic dredging is the availability and suitability of placement sites once the dredged material has been removed from the river. Presently, the material (classed by sieve analysis as medium to fine sand) is hydraulically pumped to a beach/ bankline or upland site. Since 1984, placement of dredged material has occurred on Island 241 bankline for beach nourishment (1984 and 1990) and Island 241 bankline, as well as an upland site behind the beach (1990). Placement of dredged material in the thalweg at this location has not been previously undertaken, necessitating the compilation of this Environmental Assessment (EA).

The thalweg is defined as the line which follows the deepest part of the main channel riverbed. Current literature addressing the environmental impacts of thalweg placement of dredged material generally agrees that, under certain conditions, it can be an environmentally acceptable alternative to terrestrial placement for both long-term and emergency placement requirements. If the proposed site: (1) has an absence of submerged structures, (2) has adequate depth both in the placement area and in the downstream crossing, (3) has a sand dune substrate, and (4) is not located directly upstream of a major tributary, no significant impacts should occur to the aquatic resource resulting from thalweg placement of dredged material.

I. AUTHORITY AND PURPOSE

In compliance with the National Environmental Policy Act (NEPA) of 1969, this EA was prepared to address impacts associated with utilization of a new (i.e., non-historic) dredged material placement site, namely in the thalweg of the Mississippi River near the Fever River Light and Daymark

(RM 561.3). A Section 404(b)(1) Evaluation, in compliance with the Clean Water Act, is attached to this EA as appendix B. Impacts of actual dredging operations have been addressed in earlier reports and are thus "categorically excluded" from NEPA documentation (33 CFR 230/ER 200-2-2).

Recommendations to investigate the feasibility of thalweg utilization as a dredged material placement alternative, under appropriate conditions, have been received from the On-Site Inspection Team (OSIT), an interagency committee comprised of Federal and State agencies that manage the Upper Mississippi River (UMR).

This project is proposed under the authority of the River and Harbor Acts of January 21, 1927; July 3, 1930; February 24, 1932; and August 30, 1935; and a Resolution of the House Committee on Flood Control, of September 18, 1944. These Acts and Resolution authorized the construction, operation, and maintenance of the of the 9-foot navigation channel on the Mississippi River between the mouth of the Missouri River and St. Paul, Minnesota.

The purpose of this project is to maintain the commercial navigation 9-foot channel in such a manner to avoid potential loss of life or personal injury that may result from channel closures and subsequent groundings.

II. PROJECT LOCATION AND DESCRIPTION

The proposed placement site is a long, deep scour hole on an outside bend, approximately 3.5 miles upstream of Lock and Dam 12 at RM's 561.0-561.4 (plates EA-1 and 2). The site will encompass an area of approximately 10-15 acres, depending on the actual water depth at the time of placement and the amount needing to be dredged. The hydrology of the site is such that sediments are steadily scouring as water velocities rise on this outside river bend.

Bathymetric surveys and sediment testing of the proposed site were performed in 1984 and 1987, respectively. To augment and update existing data, sediment samples again were taken in March 1992. This information is displayed on plates EA-1 through EA-9 which show water depths, sample locations, and grain size analysis of both sample dates. During the March 1992 reconnaissance trip, the proposed placement site was dragged with a grappling hook to ascertain whether boulders, snags, rock piles, stumps, or other submerged structures were present that may be utilized by fish.

III. ALTERNATIVES

A. No Action. The No Action alternative will preclude Federal involvement in the project. As a result, no dredging will occur. However, if this area is not dredged soon, it is possible that shoaling could close

the channel to commercial navigation. The No Action alternative is not a feasible alternative.

B. Beneficial Use. The beneficial use of dredged material is always pursued and has to date consisted of beach nourishment on the main channel side of Island 241.

C. Terrestrial Placement. Except for the recreational beach nourishment mentioned earlier, no acceptable terrestrial placement sites have been identified.

D. Thalweg Placement. This is the preferred alternative. It has been identified as the least costly alternative that is both environmentally acceptable and consistent with sound engineering practices. The average cost per cubic yard for thalweg placement is approximately $1.90, compared to approximately $2.30 to $4.00 for hydraulic dredging/placement alternatives, or $6.00 to $10.00 for mechanical dredging/placement. Under appropriate conditions, thalweg placement avoids impacts to more biologically sensitive/productive areas like upland, wetland, shallow water habitats, or main channel borders. The desirability and preferability of this alternative is further discussed throughout this report.

IV. AFFECTED ENVIRONMENT

The environment affected by the scope of this project is limited to the aquatic habitat associated with the placement site and a short distance downstream, hereafter referred to as the settling zone.

V. ENVIRONMENTAL IMPACTS OF THE PREFERRED ALTERNATIVE

Effects of the preferred alternative on natural resources and historic properties are summarized in table EA-1.

A. Historic Properties. A literature and archival search for significant historic properties was conducted for the proposed dredging and dredged material placement sites. The search was required by Dredging Guidance Letter No. 89-01 (March 13, 1989), entitled "Policy and Procedures for the Conduct of Underwater Historic Resource Surveys for Maintenance Dredging and Disposal Activities," as it relates to the chronic dredge cut, and promulgated by Section 106 of the National Historic Preservation Act of 1966 (NHPA), as amended (16 U.S.C. 470, et seq.). As a result of the documents search, the Corps determined that no significant historic, architectural, or archeological resources are located within the proposed project area.

TABLE EA-1

Effects of the Preferred Action
on Natural Resources and Historic Properties

Types of Resources	Authorities	Measurement of Effects
Air Quality	Clean Air Act, as amended (42 U.S.C. 165h-7, et seq.)	No significant effect
Areas of Particular Concern Within the Coastal Zone	Coastal Zone Management Act of 1972, as amended	Not present in planning area
Endangered and Threatened Species Critical Habitat	Endangered Species Act of 1973, as amended (16 U.S.C. 1531, et seq.)	No significant impacts anticipated
Fish and Wildlife	Fish and Wildlife Coordination Act (16 U.S.C. 661, et seq.)	No significant effect
Floodplains	Executive Order 11988, Flood Plain Management	No effect
Historic and Cultural Properties	National Historic Preservation Act of 1966, as amended (16 U.S.C. 470, et seq.)	No significant effect
Prime and Unique Farmland	CEQ Memorandum of Aug. 1, 1980; Analysis of Impacts on Prime or Unique Agricultural Lands in Implementing the National Environmental Policy Act	No effect
Water Quality	Clean Water Act of 1977, as amended (33 U.S.C. 1251, et seq.)	No significant effect
Wetlands	Executive Order 11990, Protection of Wetlands, Clean Water Act of 1977, as amended (43 U.S.C. 1857h-7, et seq.)	No effect
Wild and Scenic Rivers	Wild and Scenic Rivers Act, as amended (16 U.S.C. 1271, et seq.)	Not present in planning area

The Corps of Engineers notified the Illinois and Iowa Preservation Agencies' State Historic Preservation Officers (SHPO's) of the Corps' determination that no significant historic properties will be affected by the proposed undertaking. On June 18, 1991, the Illinois SHPO concurred with the Corps' determination, and the Iowa SHPO was solicited for comments and no formal reply was made. This coordination fulfilled the requirements of the NHPA and its implementing regulations, 36 CFR Part 800: "Protection of Historic Properties" (appendix A).

B. **Manmade Resources.** The proposed project, located in Pool 12, may be considered manmade resources since they are natural resources modified by man to facilitate waterborne commerce on the UMR. The 9-foot river channel is essential to commercial navigation on the Mississippi River. The series of pools and the channel were created and are controlled by operation of the locks and dams in conjunction with other components of the Upper Mississippi River Nine-Foot Channel Navigation Project. Completion of this project, as with all maintenance dredging operations, will counteract the effects of sediment accretion that impedes commercial navigation.

C. **Natural Resources.** The proposed project will take place exclusively in the aquatic environment. Potential sources of impacts from this project include benthic and nektonic fauna (such as fishes, mussels, and invertebrates) that may utilize the scour hole portion of the thalweg and/or the settling zone.

Main channel deep water scour holes with unstable, homogeneous sand substrates and a lack of submerged structures exhibit low species abundance and diversity and are generally low in biological activity. The direct biological impacts of thalweg placement on mussels and invertebrates will be minimal. The dynamic nature of the actively moving bedload provides inhospitable conditions for habitation by benthic flora and fauna.

No aquatic plants or definable plant beds are present in the placement site or the adjacent main channel borders. This is likely the result of water depths and unstable substrates associated with lotic systems.

Under certain conditions, main channels can support many species and life history stages of fish. Of particular concern, dense wintering aggregations of channel catfish have been found to inhabit deep holes that contain riprap, rock, stumps, and log piles, etc. These structures provide microhabitats or back eddies that serve as protection from the current. The proposed placement site was surveyed for any of the aforementioned submerged structures in March 1992 by dragging the area with a grapple. Riprap associated with the Fever River Light and Daymark at RM 561.3 was snagged by the grapple. The Daymark lies on the perimeter of a line of bank protection and will be avoided during placement to not impact fish habitat. The absence of microhabitats in the placement site decreases the likelihood that the proposed project will cause any significant, negative impacts to any fish populations there. Further, the placement site is devoid of submergent or emergent vegetation that may attract fish and/or wildlife.

Studies and experiments have been conducted where sand was dyed (tagged) and injected into the pipeline to track the movement of dredged material after thalweg placement. Results from these studies conclude that dredged material placed in the thalweg remained in the thalweg. No evidence was found of significant migration of dredged sand into biologically sensitive main channel borders, side channels, backwaters, or sloughs. The anticipated dredging volume of 76,000 yd^3 constitutes approximately 25 percent of the average annual bedload transport. No long-term, significant, negative impacts to downstream sport fishing areas, spawning habitats, mussel beds, or wildlife habitats will result from project implementation.

Backwaters and main channel borders adjacent to and downstream of the proposed placement site are listed in the *Upper Mississippi River Resources Inventory*, March 1984, as important sport and commercial fishing locations.

The thalweg area will be surveyed before and after placement and after a significant high flow event. Surveys will be compiled thereafter as deemed appropriate to verify the movement of material. The side channel accesses to Wise Lake and Crooked Slough, located on the left descending bank at approximate RM 560.9 will be monitored for dredged material migration at the same frequency as the surveys of the thalweg area. Based on the aforementioned tagged sand experiments, dredged material is not expected to impact the Wise Lake and Crooked Slough accesses. Data obtained from post-placement bathymetric surveys will reveal any degree of migration. If the survey reveals significant material migration, over and above that normally experienced there, the suitability of thalweg placement at this location will be reevaluated.

The ichthyoplankton drift season extends from April through July. Since the Rock Island District does not begin its dredging season on the Mississippi River until approximately August 1, the placement of material in the thalweg will not impact fish eggs or ichthyoplankton.

RM's 560.0-565.0L are listed as locations for river otter sightings and extensive backwater production and harvest habitat for waterfowl and furbearer species. Backwater habitats will not be impacted.

The proposed placement site is recognized as a popular water sport area and the location of two side channel accesses. However, because of the small amount of fine material in the area to be dredged, little material is expected to be available to enter backwater areas or side channels.

The preferred placement alternative contains no rookery, critical wildlife habitat, popular sand beaches, water-oriented recreation facilities, or public parks.

Endangered Species. Four federally endangered species are known from the project area: bald eagle (*Haliaeetus leucocephalus*), Iowa Pleistocene snail (*Discus macclintocki*), northern wild monkshood (*Aconitum noveboracense*), and Higgins' eye pearly mussel (*Lampsilis higginsii*).

As requested by the U.S. Fish and Wildlife Service, a mussel survey was conducted by Rock Island District biologists on July 17, 1992, to assess the possible presence of mussels in the proposed placement site. The primary purpose of this survey was to determine the general location, extent, and quality of any mussel concentrations found. The survey was performed using a conventional mussel brail. The location of all brail runs is shown on plate EA-10.

No rare, endangered, or threatened species were found. Only one brail run resulted in any mussel recoveries. That run was repeated to verify the presence of mussels encountered in the first run. Four individuals representing three species were recovered from the first run: two hickory nuts (*Obovaria olivaria*); one pig toe (*Fusconia flava*); and one zebra mussel (*Dreissena polymorpha*). The zebra mussel was attached to one of the hickory nuts. Four individuals (all hickory nuts) were recovered from the second run.

The results of this survey indicate the presence of a nondiverse, noncommercial quality mussel bed at approximate RM 561.5. Efforts will be made to avoid placing dredged material on or directly upstream of this bed for impact avoidance.

No riverside vegetation will be disturbed; therefore, the proposed action will not impact bald eagles, Iowa Pleistocene snails, or the northern wild monkshood.

No mines or mineral resources will be impacted if the proposed project is enacted.

VI. ENVIRONMENTAL IMPACTS OF NONPREFERRED ALTERNATIVES

The historic placement sites for this recurring dredge cut are at or near capacity. "Over utilization" for dredged material placement will result in environmentally unacceptable impacts to the beach area because excessive amounts of dredged material will negatively impact the aquatic habitat adjacent to the beach and the nearby wetlands.

VII. PROBABLE ADVERSE ENVIRONMENTAL IMPACTS WHICH CANNOT BE AVOIDED

Benthic organisms will be lost at the placement site due to burial. Considering the general adaptability of the benthos to sediment deposition, rapid recolonization is expected for those organisms that do utilize the proposed placement site.

Turbidity levels will increase during placement activities. However, settling velocities of the sediments (medium to fine sands) dredged from the main channel should generally be sufficiently high to limit the downstream influence of turbidity generated by thalweg placement. The direct biological impacts of placement in the thalweg, as well as secondary impacts from turbidity generated by the placement process, appear to be minimal. Therefore, turbidity control (e.g., silt screens) will not be implemented.

The bottom topography will be altered following dredged material placement. Experimental sites concerning thalweg placement at Savanna Bay, Duck Creek, Whitney Island, and Gordon's Ferry reveal that the topographically distinguishable placement pile will be eradicated after the first period of high water flow. Bathymetric surveys following placement at current thalweg placement sites (e.g. Pleasant Creek, Buzzard Island, Steamboat Slough) substantiate this claim.

VIII. COMPLIANCE WITH ENVIRONMENTAL QUALITY STATUTES

A tabular summation of compliance can be found in table EA-2.

A. Endangered Species Act of 1973, as amended. The project will not impact any endangered species.

B. National Historic Preservation Act of 1966, as amended. Project plans and the Corps determination of no significant historic properties involved with this project have been coordinated with the SHPOs of the Iowa and Illinois Historic Preservation Agencies, and the project may proceed in full compliance with the *National Historic Preservation Act of 1966*, as amended, and all other legislation concerning historic properties.

C. Federal Water Project Recreation Act. No opportunities for recreational development or aspects of the proposed project conducive to recreational development have been identified.

D. Fish and Wildlife Coordination Act. Project plans have been coordinated with the U.S. Fish and Wildlife Service, the Illinois Department of Conservation, and the Iowa Department of Natural Resources. Responses from these organizations can be found in Appendix A - Pertinent Correspondence.

E. Wild and Scenic Rivers Act of 1968, as amended. This portion of the Mississippi River is not listed as either wild or scenic.

F. Executive Order 11988 (Flood Plain Management). The project will not impact any flood plain. Therefore, the proposed plan is judged to be in full compliance.

TABLE EA-2

Relationship of Plans to Environmental Protection
Statutes and Other Environmental Requirements

Federal Policies	Compliance
Archaeological and Historic Preservation Act, 16 U.S.C. 469, et seq.	Full compliance
Clean Air Act, as amended, 42 U.S.C. 1857h-7, et seq.	Full compliance
Coastal Zone Management Act, 16 U.S.C. 1451, et seq.	Not applicable
Endangered Species Act, 16 U.S.C. 1531, et seq.	Full compliance
Estuary Protection Act, 16 U.S.C. 1221, et seq.	Not applicable
Federal Water Project Recreation Act, 16 U.S.C. 460-1(12), et seq.	Full compliance
Fish and Wildlife Coordination Act, 16 U.S.C. 601, et seq.	Full compliance
Land and Water Conservation Fund Act, 16 U.S.C. 460/-460/-11, et seq.	Not applicable
Marine Protection Research and Sanctuary Act, 33 U.S.C. 1401, et seq.	Not applicable
National Environment Policy Act, 42 U.S.C. 4321, et seq.	Full compliance
National Historic Preservation Act, 16 U.S.C. 470a, et seq.	Full compliance
Rivers and Harbors Act, 33 U.S.C. 403, et seq.	Full compliance
Watershed Protection and Flood Prevention Act, 16 U.S.C. 1001, et seq.	Not applicable
Wild and Scenic Rivers Act, 16 U.S.C. 1271, et seq.	Full compliance
Flood Plain Management (Executive Order 11988)	Full compliance
Protection of Wetlands (Executive Order 11990)	Full compliance
Environmental Effects Abroad of Major Federal Actions (Executive Order 12114)	Not applicable
Farmland Protection Act	Full compliance
Analysis of Impacts on Prime and Unique Farmland (CEQ Memorandum, 11 Aug 80)	Full compliance

NOTES:

a. Full compliance. Having met all requirements of the statute for the current stage of planning (either preauthorization or postauthorization).
b. Partial compliance. Not having met some of the requirements that normally are met in the current stage of planning. Partial compliance entries should be explained in appropriate places in the report and referenced in the table.
c. Noncompliance. Violation of a requirement of the statute. Noncompliance entries should be explained in appropriate places in the report and referenced in the table.
d. Not applicable. No requirements for the statute required; compliance for the current stage of planning.

G. **Executive Order 11990 (Protection of Wetlands).** The preferred placement site will not impact any wetlands. Utilization of the preferred site will avoid impacts to wetlands that might otherwise be used as placement alternatives.

H. **Clean Water Act (Section 401 and 404), as amended.** Because dredged or fill material will be placed into the waters of the United States, a Section 404(b)(1) Evaluation has been prepared and will accompany this EA. Certification under Section 401 of the Act has been received from the State of Illinois. Based on review of this EA and accompanying 404(b)(1) Evaluation, and prior to dredging and subsequent placement of the material in the thalweg, the State of Iowa will evaluate 401 certification issuance.

I. **Clean Air Act, as amended.** No aspects of the proposed project have been identified that will result in violations to air quality standards. Exhaust emissions and fugitive dust particle levels actually will be lower than could be expected from terrestrial placement and subsequent shaping/manipulation of the placement pile.

J. **Farmland Protection Policy Act of 1981.** The proposed project will not result in the conversion of any prime, unique, or State or locally important farmland to nonagricultural uses.

K. **National Environmental Policy Act of 1970, as amended.** The compilation of this EA fulfills NEPA compliance.

L. **National Economic Development (NED) Plan.** The NED Plan is the plan which best satisfies the Federal planning objectives of increasing the value of the Nation's output of goods and services and produces the most improvement to the national economic efficiency. The proposed plan is considered the best to fulfill the NED objective.

IX. RELATIONSHIP BETWEEN SHORT-TERM USE AND LONG-TERM PRODUCTIVITY

The Mississippi River is a vital component of the national transportation infrastructure, and, with timely and appropriate maintenance, will continue to serve recreational, commercial, and environmental interests for the long term.

Without this short-term use of the aquatic environment, the navigation channel will continue to deteriorate from shoaling, eventually closing the channel to commercial traffic.

X. ANY IRREVERSIBLE OR IRRETRIEVABLE COMMITMENTS OF RESOURCES IF PROJECT IS IMPLEMENTED

Fuel consumed, manpower expended, and the commitment of construction materials are considered to be irretrievable.

XI. SOCIAL AND ECONOMIC EFFECTS OF PROPOSED ACTION

A. **Community and Regional Growth.** No significant effects to community or regional growth will result from the project.

B. **Community Cohesion.** There will be no impacts to community cohesion since the project does not directly impact a human community.

C. **Displacement of People.** The project will necessitate no residential displacements.

D. **Property Values and Tax Revenues.** No significant impacts on property values or tax revenues in the project area will result from the proposed project.

E. **Public Facilities and Services.** The proposed thalweg placement of dredged material will positively impact public facilities and services. Maintenance of the 9-foot channel is essential for commercial navigation on the UMR.

F. **Life, Health, and Safety.** The project will help maintain the commercial navigation 9-foot channel and reduce the potential for personal injury to lock and dam personnel and towing industry personnel resulting from channel closures and subsequent groundings.

G. **Business and Industrial Growth.** A small increase in business and industrial activity will be noticed during project construction. However, no long-term effects on business or industrial activity will result. The utilization of this placement site will necessitate no business or industrial relocations.

H. **Employment and Labor Force.** Thalweg placement of dredged material at the project site will have no impacts on employment in the project vicinity. No permanent effect on area employment will result.

I. **Farm Displacement.** No farms or farmlands will be affected by the proposed placement of dredged material.

J. **Noise Levels.** The completed project will not impact noise levels in the project vicinity. Thalweg placement of dredged material has lower noise levels than terrestrial placement because no heavy equipment is required for moving or shaping the material at the site.

K. **Aesthetics.** The aesthetic appeal of any type of dredging activity is low; however, dredging will be very short-term. This project will not require heavy equipment for moving and shaping the placement pile, thereby improving the aesthetics compared to land placement. In addition, the long-term aesthetics of thalweg placement are generally better than those of terrestrial placement.

L. **Air Quality.** There will be a minor, temporary effect on air quality during the operation of the dredge. However, air quality impacts are lower for thalweg placement than from terrestrial placement, since no heavy machinery will be required to move or shape the placement pile.

XII. RELATIONSHIP TO LAND USE PLANS

The proposed project does not involve the use of any land (non-aquatic). Further, if implemented, the project will not significantly alter or conflict with current recreational or commercial usage.

XIII. CONCLUSIONS

Dragging the proposed site revealed a line of submerged structures paralleling and bordering the thalweg on the left descending side for bank protection. There is no wetland or aquatic vegetation in or adjacent to the placement site. Substrate samples show the site to consist of medium to fine sands. The site is not located directly upstream of a major tributary. The placement pile will disappear after the first flood event. Finally, if pre-placement bathymetric surveys indicate adequate depth in the placement area, and if the submerged rock bank protection can be avoided, implementation of the project will not significantly affect natural resources.

XIV. COORDINATION

Coordination with State and Federal governmental agencies was undertaken by letter early in the planning process (Appendix A). The following agencies have been contacted:

Illinois Department of Conservation
Illinois State Historic Preservation Agency (SHPO)
Illinois Environmental Protection Agency
Illinois Department of Transportation
Iowa State Historic Preservation Agency (SHPO)
Iowa Department of Natural Resources
U.S. Fish and Wildlife Service
U.S. Environmental Protection Agency (Regions 5 & 7)

In their coordination response, the U.S. Fish and Wildlife Service requested a mussel survey and general habitat inventory for this project. Those concerns were satisfied by the completion of a mussel survey conducted by Rock Island District biologists (Appendix A).

FINDING OF NO SIGNIFICANT IMPACT

DREDGED MATERIAL THALWEG PLACEMENT SITE
MISSISSIPPI RIVER MILES 561.0 - 561.4
ISLAND 241, POOL 12

I have reviewed the information provided in this Environmental Assessment, along with data obtained from Federal and State agencies having jurisdiction by law or special expertise, and from the interested public. I find that the placement of dredged material in the thalweg of the Mississippi River channel at approximate River Miles 561.0-561.4 will not significantly affect the quality of the human environment. Therefore, it is my determination that an Environmental Impact Statement is not required. This determination will be reevaluated if warranted by later developments.

Alternatives considered in addition to the preferred alternative:

- No Federal Action

- Beneficial Use

- Terrestrial Placement

Factors that were considered in making this determination that an Environmental Impact Statement was not required were as follows:

a. Hydrologic and morphometric conditions have been met that are necessary for thalweg placement suitability.

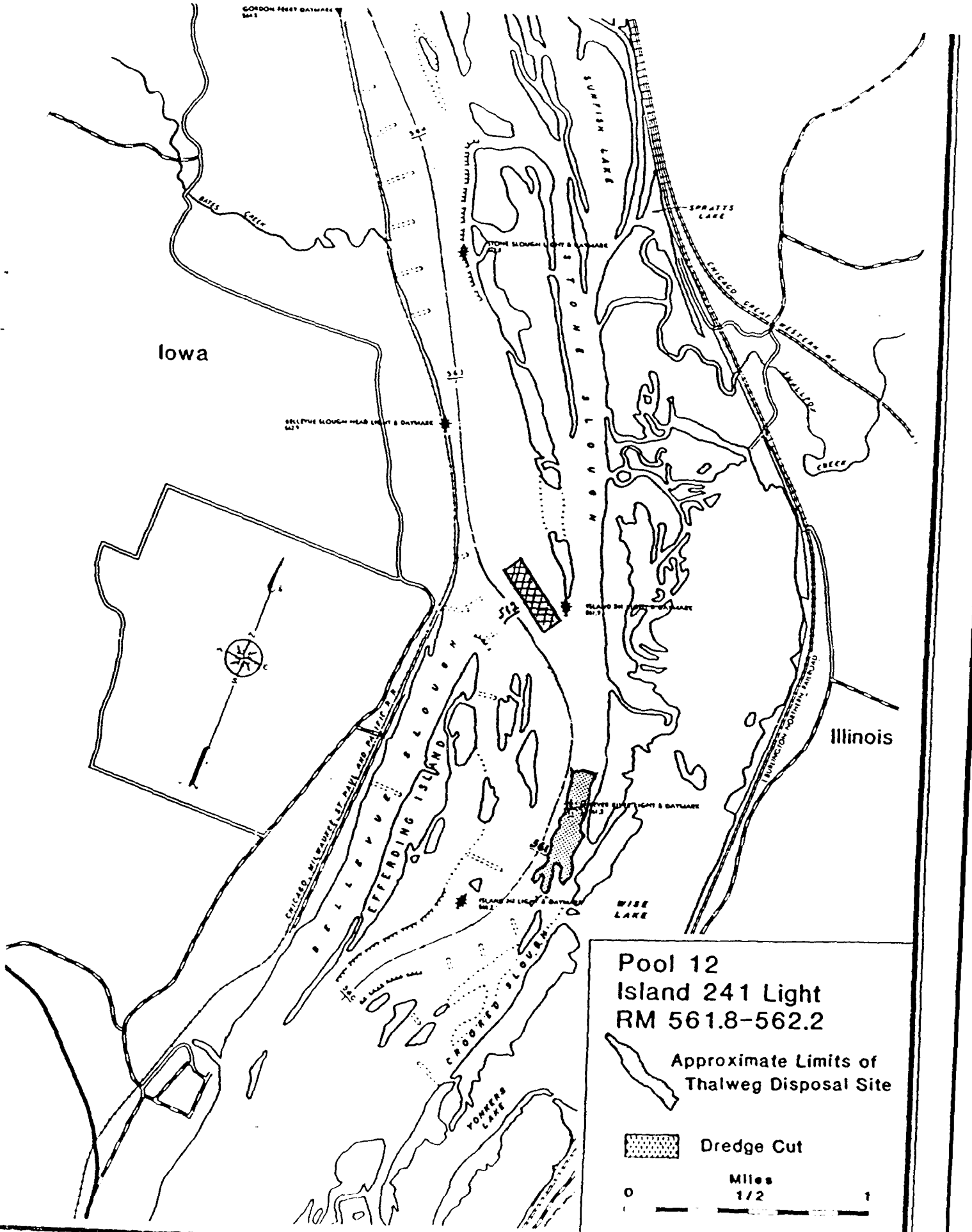
b. Impacts to wildlife and aquatic communities will be minimal and offset by not using terrestrial placement.

c. No wetland, agricultural land, or other property will be affected by this project.

d. The site is renewable by nature as the thalweg is steadily scouring as water velocities increase on this outside bend in the river.

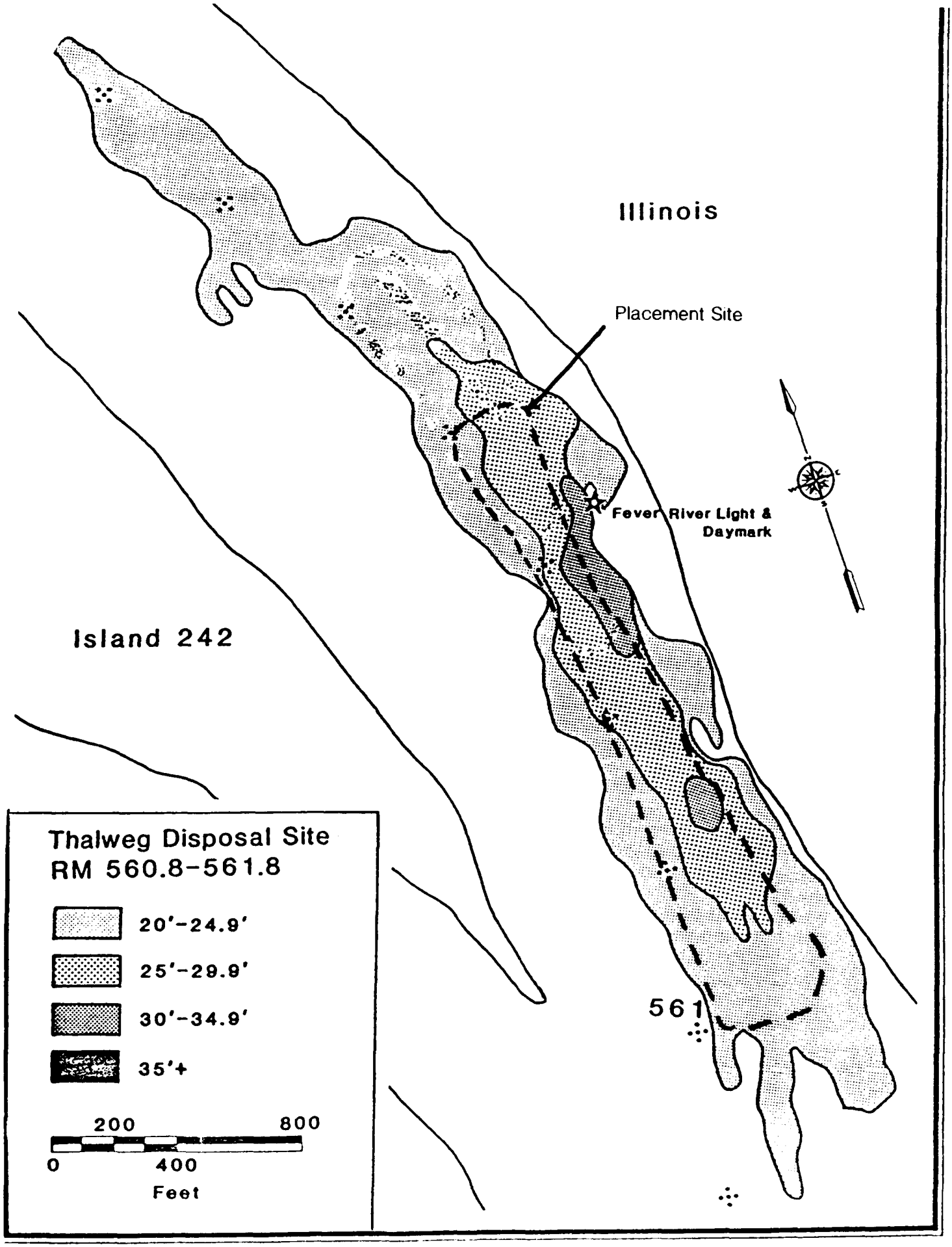
_____
Date

Albert J. Kraus
Colonel, U.S. Army
District Engineer



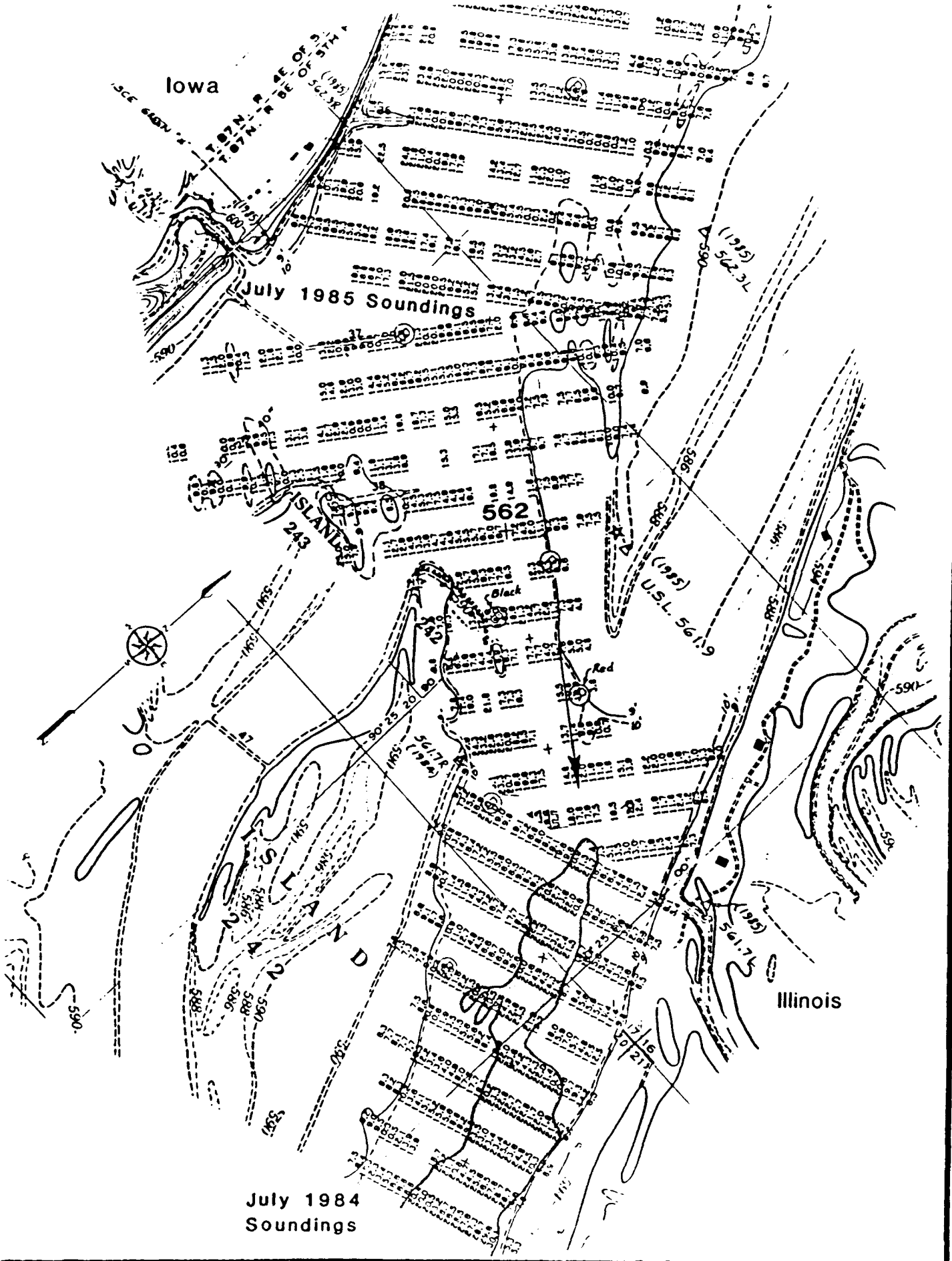
Island 241 Light – General Location Map

PLATE EA-1



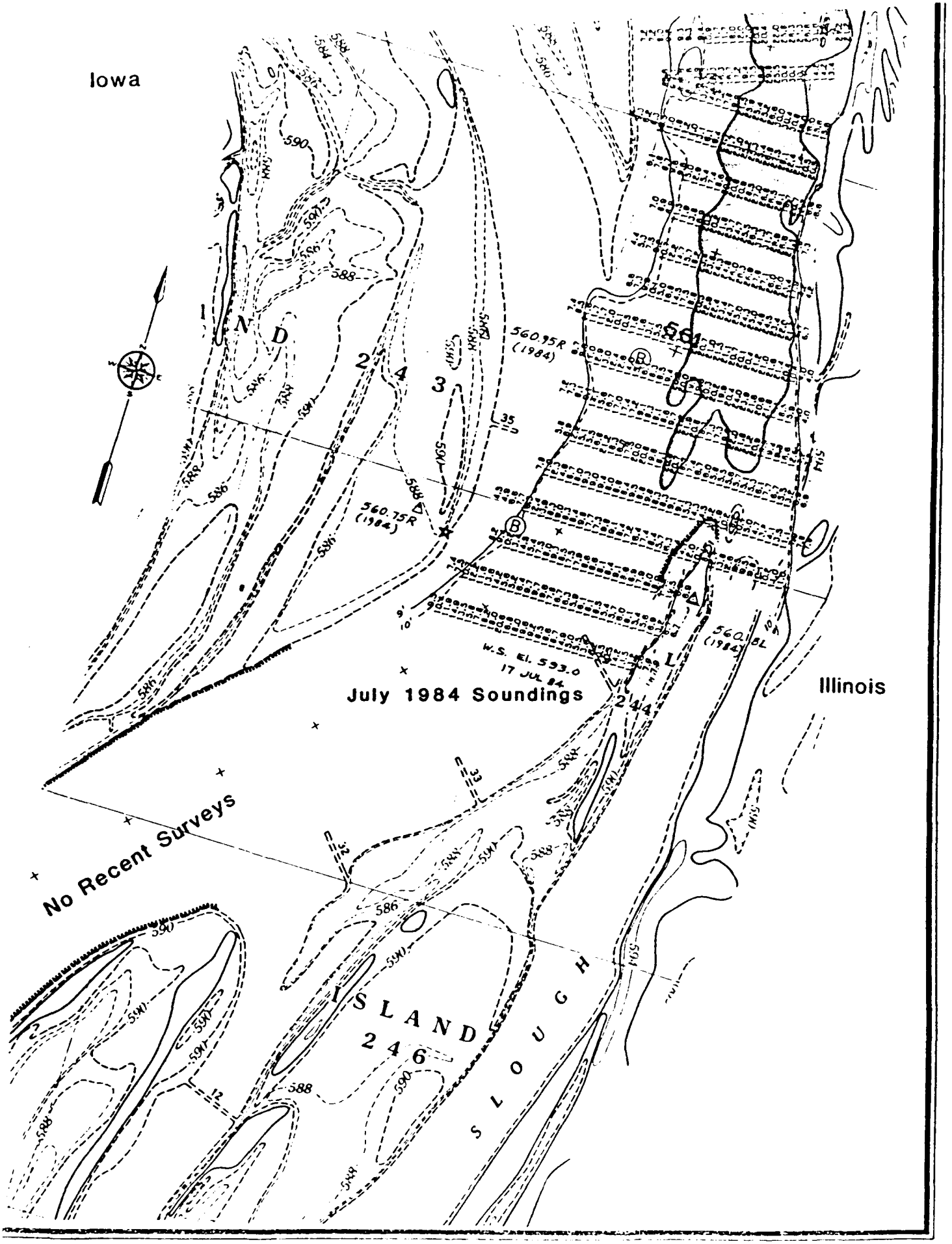
Island 241 Light - Contour Map

PLATE EA-2

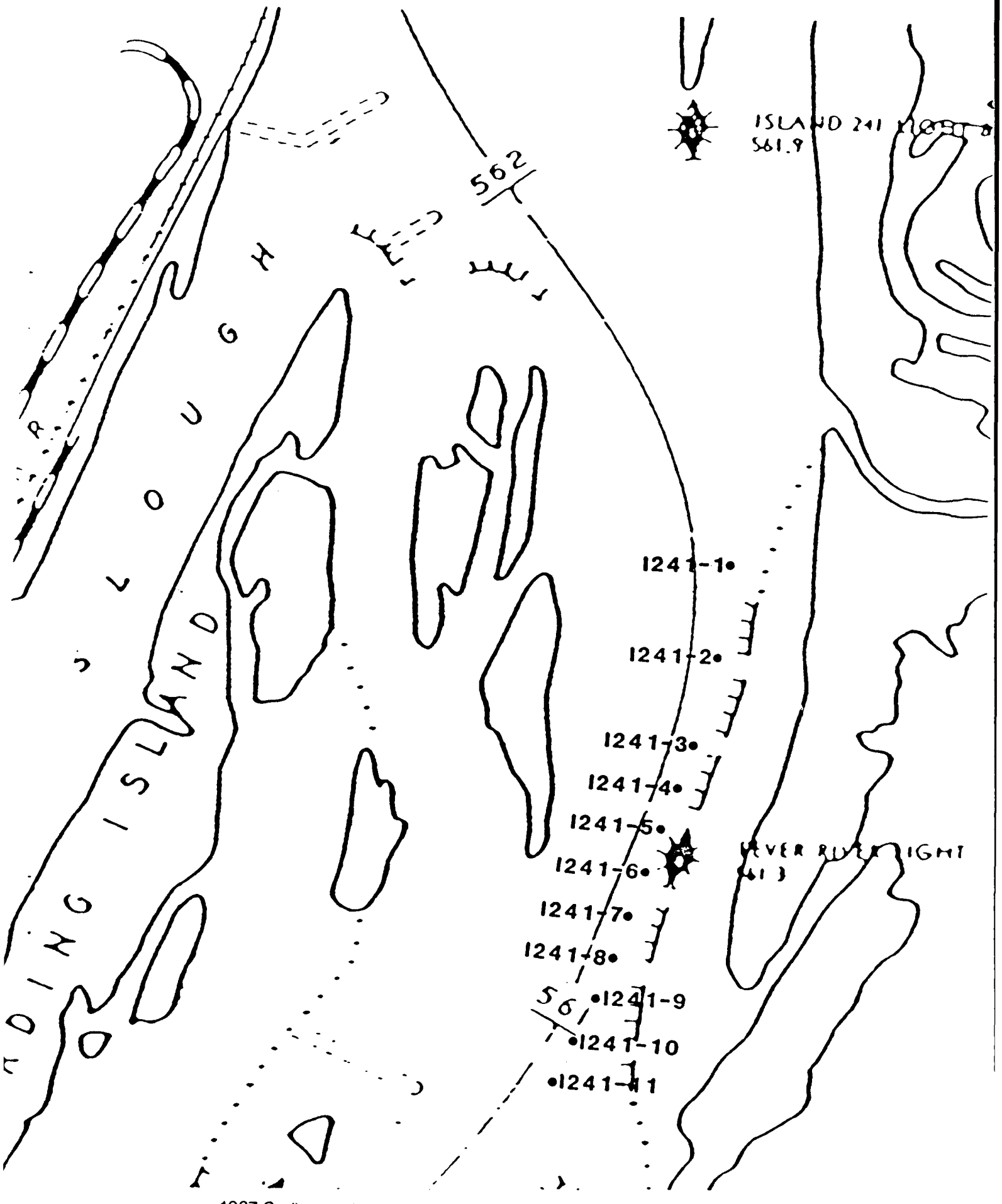


Island 241 Light – Sounding Map # 1

PLATE EA-3

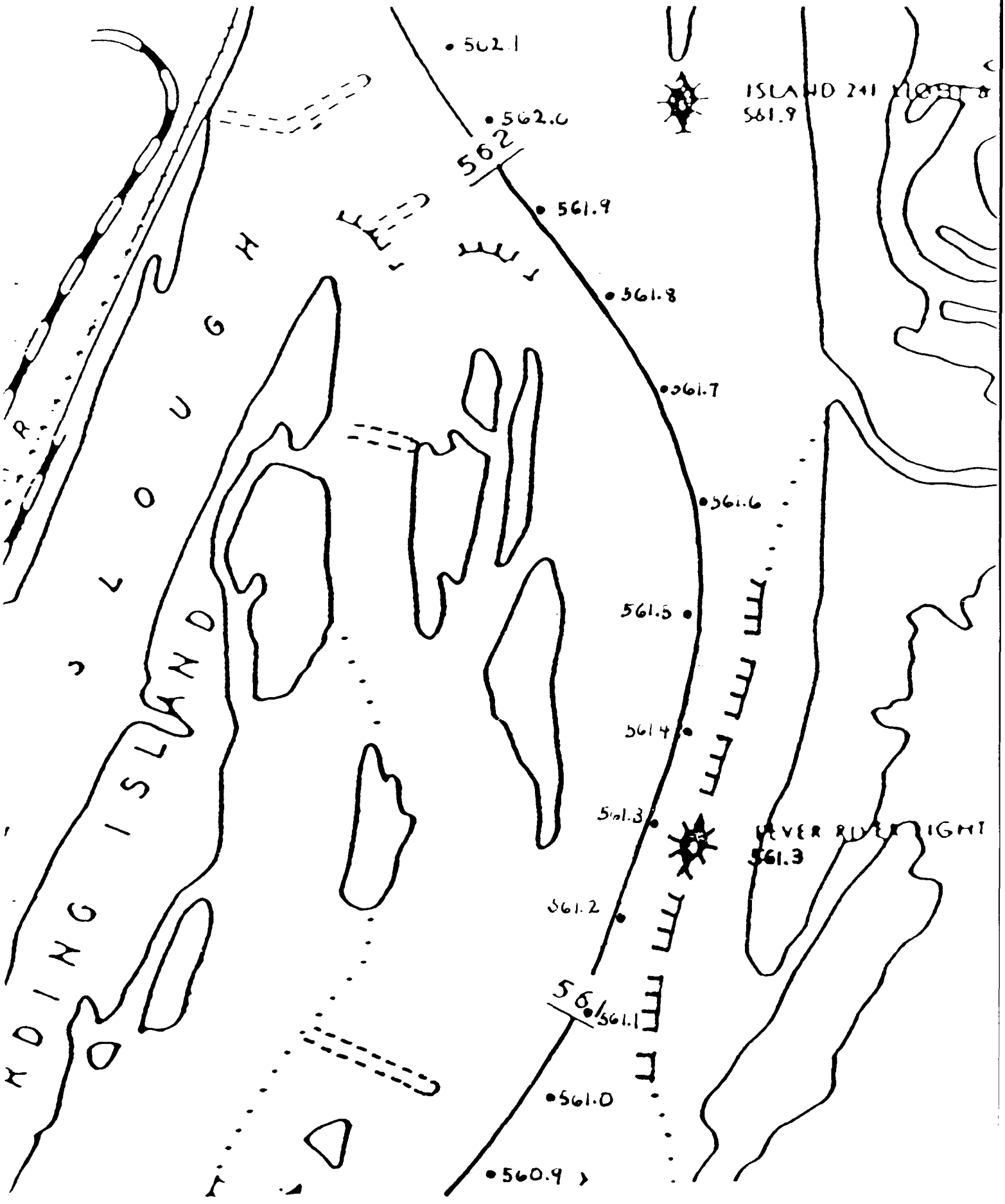


Island 241 Light - Sounding Map #2



1987 Sediment Sampling Stations at the Island 241 Light Site

PLATE EA-5



1992 Sediment Sampling Stations at the Island 241 Light Site

PLATE EA-6

MISSISSIPPI RIVER - ISLAND 241 LIGHT
GRAIN-SIZE ANALYSIS OF SEDIMENT SAMPLES
SUMMARY OF TESTING

PERCENT FINER BY WEIGHT

U.S. STANDARD SIEVE SIZE OR NUMBER	I241-1	I241-2	I241-3	I241-4	I241-5	I241-5 (DUP)	I241-6	I241-7	I241-8	I241-9	I241-10	I241-11
3/4"	--	--	--	--	--	--	--	99.6	--	--	--	--
3/8"	--	--	--	--	--	--	--	99.6	--	--	99.5	--
#4	100.0	100.0	100.0	97.0	100.0	99.8	99.9	99.6	100.0	100.0	99.2	100.0
#8	98.9	100.0	100.0	95.8	99.7	99.6	99.3	99.3	99.9	99.1	97.7	99.9
#16	98.4	99.7	99.1	92.1	95.4	95.3	98.8	98.1	99.0	96.4	96.2	98.7
#30	96.4	97.7	94.3	86.8	80.1	79.5	94.0	90.6	91.8	87.1	81.3	86.8
#50	37.4	69.9	26.5	58.9	35.6	29.3	6.6	33.1	23.8	31.4	21.8	18.6
#80	3.7	17.7	3.0	16.9	3.7	2.6	1.3	4.0	1.0	1.3	1.0	0.8
#100	1.4	11.0	1.6	10.7	1.6	1.1	0.6	1.6	0.4	0.4	0.4	0.3
#200	1.3	8.4	1.6	9.5	1.6	1.1	0.5	0.2	0.3	0.4	0.4	0.3
#230	0.2	4.8	0.7	5.4	0.6	0.4	0.2	0.2	0.0	0.1	0.1	0.1
Classification	SAND	SAND	SAND	SAND	SAND	SAND	SAND	SAND	SAND	SAND	SAND	SAND

PLATE EA-7

MISSISSIPPI RIVER
ISLAND 241 THALWAG DISPOSAL
SAMPLES COLLECTED: 5 MARCH 1992

GRAIN SIZE ANALYSIS OF SEDIMENT SAMPLES

SUMMARY OF TESTING

U.S. Standard Sieve Size or Number

Percent Finer by Weight

Sample No.	560.9	561.0	561.1	561.2	561.3	561.4	561.5	561.5 (DUP)
3/4"			100.0					
1/2"			83.3	100.0	100.0			
3/8"			77.7	99.5	99.8	100.0		
# 4			68.0	98.2	99.7	99.9		
# 8	100.0	100.0	65.0	92.9	99.3	99.7	100.0	100.0
# 16	98.6	97.7	62.7	86.7	98.2	99.4	99.8	99.9
# 30	85.3	79.5	53.5	82.1	91.9	98.5	99.4	99.5
# 40	55.0	46.8	38.4	77.6	72.2	93.7	95.6	96.4
# 50	17.5	9.1	14.2	47.3	31.8	46.6	32.9	48.7
# 70	2.7	1.3	5.3	11.3	4.9	6.8	5.6	7.8
#100	0.3	0.3	3.7	1.0	0.7	0.9	0.8	1.1
#200	0.1	0.2	3.0	0.1	0.2	0.2	0.2	0.3
#230	0.1	0.2	2.9	0.0	0.2	0.2	0.1	0.2
Class.	(a)	(a)	(b)	(a)	(a)	(c)	(c)	(c)

Notes:

1. Visual classification of soils as stated below is in accordance with "The Unified Soils Classification System (USCS)".

   (a) SP Brown medium to fine sand
   (b) SP Brown gravelly medium to fine sand
   (c) SP Brown fine sand

2. Laboratory testing was performed in accordance with EM 1110-2-1906 dated 30 Nov 70, revised 1 May 80 and 20 Aug 86. All samples were oven dried at 110 degrees centigrade. Sample designated (dup) is a duplicate sample.

PLATE EA-8

MISSISSIPPI RIVER
ISLAND 241 THALWAG DISPOSAL
SAMPLES COLLECTED: 5 MARCH 1992

GRAIN SIZE ANALYSIS OF SEDIMENT SAMPLES

SUMMARY OF TESTING

U.S. Standard Sieve Size or Number	Percent Finer by Weight						
Sample No.	561.6	561.7	561.8	561.9	562.0	562.1	562.2
3/4"							
1/2"							
3/8"						100.0	100.0
# 4		100.0		100.0		99.9	99.9
# 8	100.0	99.8	100.0	99.7	100.0	99.2	99.7
# 16	99.2	99.4	99.9	98.5	99.0	94.2	97.9
# 30	98.5	91.7	99.0	89.5	80.9	59.1	84.0
# 40	93.9	68.3	93.3	70.0	51.4	34.8	65.0
# 50	38.9	20.1	18.5	29.9	11.6	12.2	30.0
# 70	9.2	3.9	2.6	4.8	1.8	2.8	6.7
#100	1.5	0.8	0.2	0.6	0.3	0.6	1.5
#200	0.3	0.2	0.1	0.1	0.2	0.2	0.5
#230	0.3	0.2	0.1	0.1	0.2	0.2	0.4
Class.	(c)	(a)	(c)	(a)	(a)	(a)	(a)

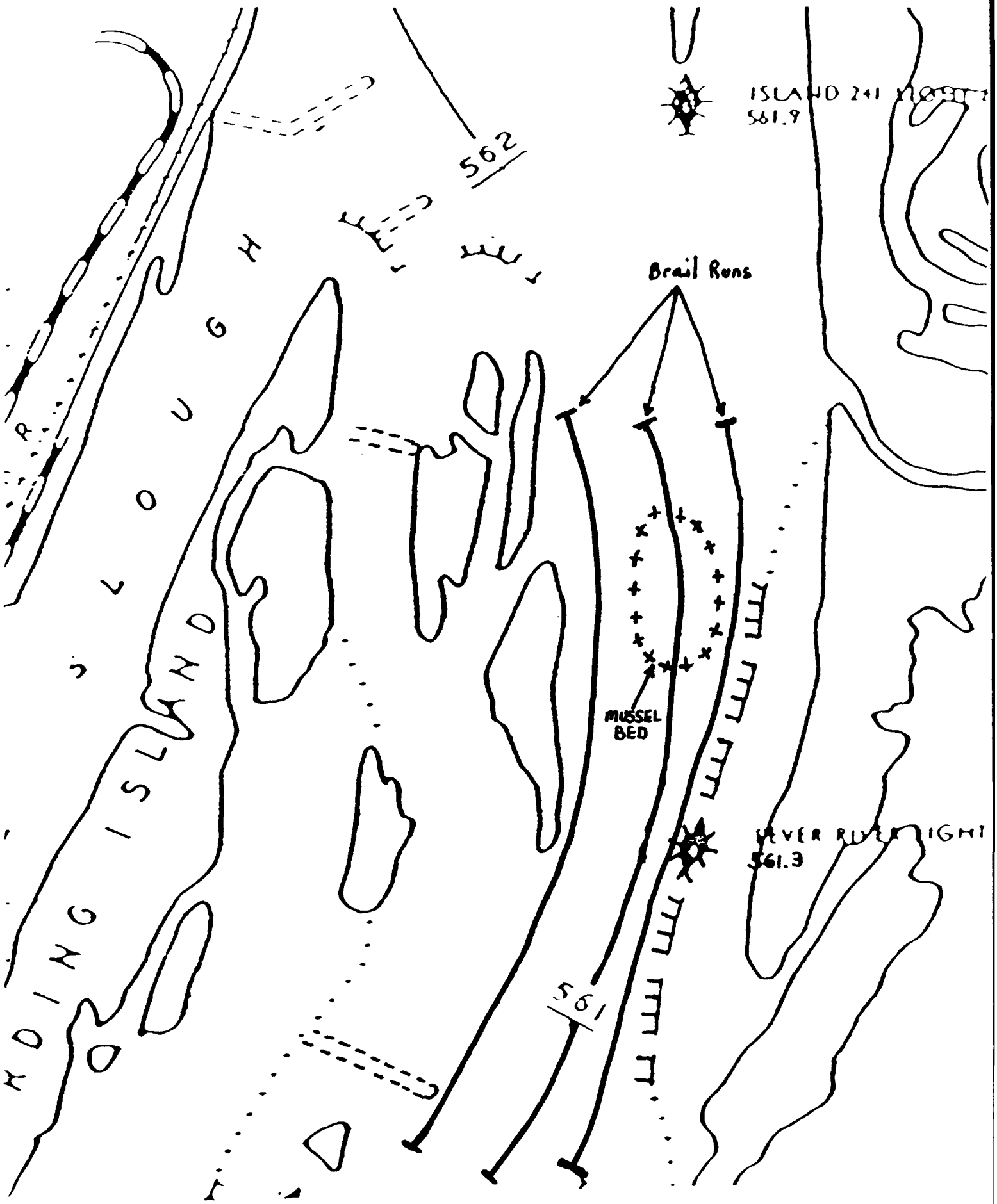
Notes:

1. Visual classification of soils as stated below is in accordance with "The Unified Soils Classification System (USCS)".

   (a) SP Brown medium to fine sand
   (b) SP Brown gravelly medium to fine sand
   (c) SP Brown fine sand

2. Laboratory testing was performed in accordance with EM 1110-2-1906 dated 30 Nov 70, revised 1 May 80 and 20 Aug 86. All samples were oven dried at 110 degrees centigrade. Sample designated (dup) is a duplicate sample.

PLATE EA-9



1992 Brail Run Locations and Approximate Mussel Bed Location

APPENDIX A

PERTINENT CORRESPONDENCE

DEPARTMENT OF THE ARMY
ROCK ISLAND DISTRICT, CORPS OF ENGINEERS
CLOCK TOWER BUILDING—P.O. BOX 2004
ROCK ISLAND, ILLINOIS 61204-2004

May 6, 1991

REPLY TO ATTENTION OF:

Planning Division

SEE DISTRIBUTION LIST

The Rock Island District of the U.S. Army Corps of Engineers has identified the need for a new long-term dredged material placement site in Mississippi River Pool 12. The dredge cut is located at approximate Mississippi River Miles 561.8-562.2.

Since the historic site on Island 241 is now full, it is proposed that thalweg disposal of dredged material be used for future material placement. The proposed site extends from approximate river mile 561 upstream to the dredge cut. The enclosed map shows the location which is operationally suitable for thalweg disposal (enclosure 1).

Bathymetric surveys and sediment testing of the proposed disposal site were performed in 1986. This information is displayed in enclosure 1. Updated bathymetric surveys will be available in the next few weeks. We will be happy to provide these to anyone who requests them.

The existing information indicates that the river bottom consists primarily of medium to fine sands that are part of an actively moving bed load. Past studies have shown that this type of environment usually has no significant aquatic resources (i.e., mussel beds). Unless there is sufficient evidence to suggest the presence of any significant resources, further field investigations at this site are not anticipated.

The upstream proximity of this proposed site to Crooked Slough has been considered for potential impacts. Based on our previous studies of tracking dyed dredged material, there is no indication that any material will move down the slough. The thalweg site is approximately 10-15 feet deeper than the upstream end of the slough. It is very improbable that thalweg deposited material would move up and out of the deeper channel. The new bathymetric surveys being performed this spring should bear this out. If they suggest otherwise, we will reconsider this proposal.

The Rock Island District anticipates distribution of an Environmental Assessment and Public Notice regarding this action later this year. At this time, we are requesting information regarding the location of any significant resources that could preclude the use of this site for thalweg disposal. Federally endangered species, wetlands, mussel beds, and fish spawning areas are of particular importance.

Please provide any comments you may have regarding this proposed site within 30 days of the date of this letter. Address your comments or questions to Mr. Jon Duyvejonck of our Environmental Analysis Branch, telephone 309/788-6361, Ext. 6308. Written comments may be sent to the following address:

District Engineer
U.S. Army Engineer District, Rock Island
ATTN: Planning Division (Jon Duyvejonck)
Clock Tower Building - P.O. Box 2004
Rock Island, Illinois 61204-2004

Sincerely,

Dudley M. Hanson, P.E.
Chief, Planning Division

Enclosure

Illinois Department of Transportation
Division of Water Resources
3215 Executive Park Drive / P.O. Box 19484 / Springfield, Illinois / 62794-9484

May 16, 1991

District Engineer
U.S. Army Corps of Engineers, Rock Island District
Clock Tower Building - P. O. Box 2004
Rock Island, Illinois 61204-2004

Attention: Mr. Jon Duyvejonck, Planning Division

Gentlemen:

Thank you for your May 6, 1991 letter concerning proposed thalweg disposal of dredged material in the Mississippi River at approximate river miles 301 and 561.

We are not aware of any important resources that would preclude the use of the site for thalweg disposal. Depending on findings by the Illinois Department of Conservation and the Illinois Environmental Protection Agency, we anticipate that the proposed dredged material disposal operations will qualify for approval under Illinois Department of Transportation, Division of Water Resources Permit No. 17603.

Thank you for providing us with the opportunity to review the proposed work. Please feel free to contact Mike Diedrichsen of my staff at 217/782-3862 if you have any questions or comments.

Sincerely,

Dennis L. Kennedy, P.E., Head
Technical Analysis and Permit Unit

DLK:MLD:pw/2439R

cc: Illinois Dept. of Conservation
Illinois Environmental Protection Agency

United States Department of the Interior

Fish and Wildlife Service
Rock Island Field Office (ES)
1830 Second Avenue, Second Floor
Rock Island, Illinois 61201

COM: 309/793-5800
FTS: 782-5800

TAKE PRIDE IN AMERICA

In Reply Refer to:

June 13, 1991

Colonel John R. Brown
District Engineer
U.S. Army Engineer District, Rock Island
ATTN: Planning Division (Jon Duyvejonck)
Clock Tower Building - P.O. Box 2004
Rock Island, IL 61204-2004

Dear Colonel Brown:

This letter is in response to your May 6, 1991, request for comment on proposed thalweg disposal in Pools 22 and 12, at approximate Mississippi River miles 301.2 and 561.5 respectively. Your correspondence indicated that environmental assessments would be prepared for both actions.

Our concerns for the Pool 22 site involve tailwater fish spawning and the proximity of a designated freshwater mussel sanctuary downstream from Lock and Dam 22. Tailwater habitats adjacent to navigation dam stilling basins are presumed to provide suitable habitat for certain fish species requiring coarse substrate and higher velocities for spawning. Depending on the timing of the proposed action and river discharge, tailwater spawning success could be adversely affected by disposal immediately upstream of the gated portion of the dam.

Endangered species known from the project area include the bald eagle (Halieetus leucocephalus), Gray bat (Myotis grisescens), Indiana bat (Myotis sodalis) and fat pocketbook pearly mussel (Potamilus capax). The proposed action is not expected to affect the bald eagle or bat species. The State of Missouri has designated the mussel bed located between approximate river miles 299.5R and 300.2R as an official sanctuary, and has closed it to harvest. Valves of the fat pocketbook pearly mussel have been collected in the vicinity.

Although this mussel bed has survived commercial harvest, navigation, variable flows, and sediment bedload conditions, the fate of a significant quantity of sand placed or redirected into the mainstem bedload should be closely monitored during and after the dredging action. Project planning and implementation should

include provisions for sediment monitoring to determine future suitability of this disposal method at this site.

Regarding the Pool 12 site, we remain concerned about impacts to Crooked Slough aquatic habitat. Your statement regarding the improbability of movement is noted. However, the bathymetry of the proposed thalweg site indicates that some fluvial factor has prevented accretion to date. This leads us to conclude that material placed in this location will track with other bedload components to unidentified downstream locations.

Endangered species known from the Pool 12 vicinity include the bald eagle, Iowa Pleistocene snail (Discus macclintocki), northern wild monkshood (Aconitum noveboracense), and the Higgins' eye pearly mussel (Lampsilis higginsii). While no effects to the bald eagle, Pleistocene snail, or monkshood would be expected, project planning should include a mussel survey of the proposed disposal site, and a general habitat inventory of the proposed disposal site and nearby downstream habitat. Should other alternatives be developed requiring upland site selection, effects to federally listed species will be reconsidered for both Pools 12 and 22.

This letter provides comment under the authority of the Fish and Wildlife Act of 1958 and the Endangered Species Act of 1973, as amended. We thank you for the early opportunity to comment on the proposed actions and look forward to assisting the Rock Island District in meeting the challenge of long term dredged material site planning.

Sincerely,

Richard C. Nelson
Field Supervisor

cc: IADNR (Tom Boland)
ILDOC (Dan Sallee)
MODOC (Gordon Farabee)

RC:sjg

Illinois Historic Preservation Agency

Old State Capitol Springfield, Illinois 62701 (217) 782-4836

Suite 4-900 State of Illinois Center 100 W. Randolph Chicago, IL 60601 (312) 814-1409

217/785-4997

JODAVIESS COUNTY
Mississippi River Miles 561.8 - 562.2
Island 241

IHPA LOG #910508007TRW

June 18, 1991

Mr. Dudley M. Hanson, P.E.
Chief, Planning Division
District Engineer
U.S. Army Engineer District, Rock Island
Attention: Planning Division
Clock Tower Building - Post Office Box 2004
Rock Island, Illinois 61[illegible] 2004

Gentlemen:

Thank you for requesting comments from our office concerning the possible effects of the project referenced above on cultural resources. Our comments are required by Section 106 of the National Historic Preservation Act of 1966, as amended, and its implementing regulations, 36 CFR 800: "Protection of Historic Properties".

Our staff has reviewed the specifications and assessed the impact of the project as submitted by your office. We have determined, based on the available information, that no significant historic, architectural or archaeological resources are located within the proposed project area.

Please retain this letter in your files as evidence of compliance with Section 106 of the National Historic Preservation Act of 1966, as amended.

Sincerely,

Theodore Hild

Theodore W. Hild
Deputy State Historic
Preservation Officer

TWH:TRW:bb1065A/31

CONVERSATION RECORD	TIME 09:30	DATE 31 August 1992

TYPE ( )VISIT ( )CONFERENCE (x)TELEPHONE ( )INCOMING (x)OUTGOING

CF: ----------

NAME CONTACTED	ORGANIZATION	TELEPHONE
Robert Clevenstine	U.S. Fish and Wildlife Service	309/793-5800

SUBJECT: Island 241 (Mississippi River) Dredged Material Thalweg Placement

SUMMARY: In a Fish and Wildlife Service response to our coordination efforts, they request that NCR include a mussel survey at the placement site and a general habitat inventory of the disposal site and nearly downstream habitat.

NCR conducted a mussel survey of the placement site and found a previously undocumented mussel bed at approximate RM 561.5.

As stated in the EA, material will be placed downstream of the bed for impact avoidance.

This information satisfied the concerns expressed in the Fish and Wildlife Service letter. Mr. Clevenstine further stated that U.S. Fish and Wildlife Service believed that no impacts are expected to threatened or endangered species from thalweg placement at Island 241.

ACTION REQUIRED:

NAME OF PERSON DOCUMENTING CONVERSATION	SIGNATURE	DATE
Lonn I. McGuire	Lonn McGuire	01 Sept 1992

ACTION TAKEN

SIGNATURE	TITLE	DATE
	General Biologist	01 September 1992

50271-101 CONVERSATION RECORD (12-76)

APPENDIX B

CLEAN WATER ACT
SECTION 404(b)(1) EVALUATION

DEPARTMENT OF THE ARMY
ROCK ISLAND DISTRICT, CORPS OF ENGINEERS
CLOCK TOWER BUILDING – P.O. BOX 2004
ROCK ISLAND, ILLINOIS 61204-2004

REPLY TO
ATTENTION OF

CENCR-PD-E

DREDGED MATERIAL THALWEG PLACEMENT SITE
MISSISSIPPI RIVER MILES 561.0-561.4
ISLAND 241, POOL 12

CLEAN WATER ACT
SECTION 404(b)(1) EVALUATION

OCTOBER 1992

DREDGED MATERIAL THALWEG PLACEMENT SITE
MISSISSIPPI RIVER MILES 561.0-561.4
ISLAND 241, POOL 12

APPENDIX B
CLEAN WATER ACT
SECTION 404(b)(1) EVALUATION

TABLE OF CONTENTS

TABLE OF CONTENTS (Cont'd)

DREDGED MATERIAL THALWEG PLACEMENT SITE
MISSISSIPPI RIVER MILES 561.0-561.4
ISLAND 241, POOL 12

APPENDIX B
CLEAN WATER ACT
SECTION 404(b)(1) EVALUATION

SECTION 1 - PROJECT DESCRIPTION

LOCATION

The proposed dredged material placement site is located in the thalweg of the Mississippi River, adjacent to the Fever River Light and Daymark (RM 561.3), UTM, Zone 15, 4,688,650 N; 713,060 E using the Bellevue, Iowa-Illinois, 7.5' USGS Quadrangle. (See plate EA-1.)

GENERAL DESCRIPTION

The availability of engineeringly suitable, environmentally acceptable dredged material placement sites at locations requiring chronic dredging presents a constant challenge to those Federal and State agencies charged with managing the Upper Mississippi River. Historic sites for this dredging area either have become less environmentally acceptable or are at or near capacity. Experimental thalweg placement test sites have proven to be both cost effective and environmentally responsible, provided the placement site meets certain parameters. (See Background Information section in the EA.)

AUTHORITY AND PURPOSE

The authority and purpose of the evaluation portion of this document is to comply with Section 404 of the Clean Water Act pertaining to guidelines for placement of dredged or fill material into the waters of the United States.

GENERAL DESCRIPTION OF THE DREDGED MATERIAL

Sampling of the sediments in the proposed placement site was undertaken in April 1987 and March 1992. Complete detailed results can be found on plates EA-6 and 7. Generally, the thalweg at this location is comprised of medium to fine sand. The amount of fines in the sediments of both the dredge cut and the placement site is very low. The percent of material

passing a No. 230 sieve, from the 1992 sampling, range from 0.1-2.9. This size description closely matches the grain size analysis of the sediments sampled in 1987 from the general location of the placement site at approximate RM 560.9-561.4 (plate EA-7).

Dredging frequency seems to be increasing at this location. However, the lack of historic dredging events makes predicting future dredging frequencies difficult. The general location where dredging will most likely occur is Mississippi River Miles (RM's) 561.8-562.2.

DESCRIPTION OF THE PROPOSED PLACEMENT SITE

The type of site being proposed is unconfined, open-water placement in the thalweg and involves only the deep water aquatic environment.

The location of the proposed placement site is approximate Mississippi RM's 561.0-561.4 on the Illinois side of the river (plate EA-1).

The size of the placement site will depend upon the actual water depth at the time of dredging. Greater water depth allows the dredged material to be stacked higher, thereby reducing the acreage required to accommodate the total amount dredged. However, the estimated size of the placement site is 10 to 15 acres.

Dredging at this location may be required during the 1993 dredging season. If historical averages hold true, the amount to be dredged should be approximately 76,000 cubic yards and will require about 10 days to complete, working 24 hours a day.

Soundings taken in 1984 indicate that water depths in and near the proposed site range from 20 to 32 feet. Similar depths were encountered during the 1992 survey. Bathymetric surveys of the site will be undertaken in 1992 and prior to dredging to assure that a minimum adequate depth of 20 feet is present prior to deposition. The actively moving sand bedload there makes living conditions unattractive to aquatic flora and/or fauna.

Present near the placement site are structures that could be utilized by fish as microhabitats. If this submerged rock is covered, fish habitat will be lost temporarily until high water scours the thalweg to the pre-placement benthic morphology.

DESCRIPTION OF THE PLACEMENT METHOD

The thalweg placement technique places dredged material in deep water areas which will not significantly add to the sand bedload presently moving in the thalweg. Before thalweg placement begins, bathymetric surveys are used to determine the existing bottom topography and to verify the location of

the deep hole selected for dredged material placement. A hydraulic cutterhead dredge in combination with a booster pump, when needed, transports the dredged material to the placement site. At the placement location, belly anchors and/or tenders position the home pontoon to assure an anchoring effect on the discharge pipe. The discharge pipe can then move independently of the dredge by adjusting the anchors or by inserting sections of pipe in the pipeline. During and after dredged material placement, bathymetry is conducted to determine size and disposition of the placement pile.

SECTION 2 - FACTUAL DETERMINATIONS

PHYSICAL SUBSTRATE DETERMINATIONS

a. **Substrate Elevation and Slope.** Flat pool at the placement site is 592.0 feet National Geodetic Vertical Datum. Bathymetric surveys will be taken prior to dredging to determine the actual water depth and the size of the site that is suitable for placement.

b. **Sediment Type.** Particle size comparison of the placement site substrate and the material to be dredged is discussed previously under "General Description of the Dredged Material." The comparison reveals great similarity in particle size, color, and the amount of fines present.

c. **Dredged/Fill Material Movement.** The height of the placement pile will depend upon water depth at the time of placement. However, at no time will the peak or top of the pile encroach on the 9-foot navigation channel. A minimum of 12 feet will be maintained between the surface of the water and the top of the placement pile. The scour hole will be partially filled with dredged material, but the topographically distinguishable pile will disappear after the first flood. In four experimental thalweg placement sites (Duck Creek, Savanna Bay, Gordon's Ferry, and Whitney Island), the length of time for the post-placement thalweg elevations to return to pre-placement levels ranged from 99-588 days. When the dredged material does move, it will migrate down river in the thalweg. The experimental thalweg placement sites traced tagged sand and concluded that dredged material placed in the thalweg remained in the thalweg. No evidence was found of significant migration of dredged sand into biologically sensitive main channel borders, backwaters, or sloughs.

The thalweg area will be surveyed before and after placement and after a significant high flow event. Surveys will be accomplished thereafter as deemed appropriate to track the movement of dredged material. The side channel accesses to Wise Lake and Crooked Slough, on the left descending bank at approximate RM 560.9, will be monitored for dredged material migration at the same frequency as the surveys of the thalweg area. Based on the aforementioned tagged sand experiments, dredged material is not expected to impact the Wise Lake or Crooked Slough accesses. Data obtained from post-placement bathymetric surveys should reveal any unusual levels of sediment deposition. If the surveys reveal significant material migration over and above that normally experienced there, the suitability of thalweg placement at this location will be reevaluated.

d. **Physical Effects on Benthos.** The dynamic nature of the unstable, homogeneous sand bedload of the thalweg provides relatively inhospitable conditions for benthic organisms. Therefore, the direct biological impacts of thalweg placement would be minimal.

e. **Actions Taken to Minimize Impacts.** The placement of dredged material in the thalweg avoids greater environmental impacts associated with wetland or shallow water placement.

Dredged material will be placed so as to avoid the mussel bed at approximate RM 561.5.

Dredging quantities will be kept to a minimum to maintain safe navigation.

Pre-placement soundings will locate the area of adequate depth for this placement technique.

The thalweg area in and around the placement site will be surveyed before and after deposition and after a significant high flow event. Surveys will be accomplished thereafter as deemed appropriate to determine the movement of material. The side channel accesses to Wise Lake and Crooked Slough on the left descending bank at approximate RM 560.9 will be monitored at the same frequency as the surveys of the thalweg area to detect any significant migration of dredged material.

WATER CIRCULATION, FLUCTUATION, AND SALINITY DETERMINATIONS

a. **Water.** The proposed action will have a temporary and insignificant effect on water quality in the Mississippi River. Salinity gradient impacts do not apply to this project. Water chemistry, water temperature, pH, clarity, color, odor, taste, dissolved gas levels, nutrient levels or organic matter influxes will either be nonexistent or will cause insignificant and temporary impacts to aquatic organisms. Aquatic vegetation is absent in the project area and, hence, will not be affected. Impacts to the human population concerning the suitability of this water body for human consumption, recreation, and aesthetics will be negligible or nonexistent.

b. **Current Patterns and Water Circulation.** Minor changes in current patterns or flows may result from dredging operations on the Mississippi River for the purpose of channel maintenance. However, this is a temporary, short-term, and acceptable consequence of maintaining a safe channel for recreational and commercial navigation. Current patterns and water circulation will return to pre-placement condition after high water events scour the placement pile.

c. **Normal Water Level Fluctuation.** The proposed project will have no effect on water level fluctuation since sediment is being removed (dredged) from one location and then redeposited in a downstream location. The residency time of the placement pile will be relatively short but will depend upon the frequency and intensity of flood events following deposition. Therefore, no impacts will occur with regard to prolonged

periods of inundation, exaggerated extremes of high or low water, or other water level modifications as a result of this action.

d. **Salinity Gradient.** Not applicable.

e. **Actions Taken To Minimize Impacts.** Appropriate usage of the thalweg for dredged material placement will result in lessened environmental impacts compared to terrestrial and wetland placement and is further explained in other portions of this document.

SUSPENDED PARTICULATE/TURBIDITY DETERMINATIONS

a. **Effects on Physical and Chemical Properties of the Water Column.** Grain size analyses for the dredged material and the placement site sediments are included on plates EA-6 and 7. Because the sediments are sand with very little silt, settling rates will be rapid, making the discharge plume small and short-lived. Therefore, impacts on turbidity levels, suspended particulate levels, light penetration, dissolved oxygen, toxic metals, organic influxes, pathogens, and aesthetics will be minor and insignificant with only short-term duration.

Turbidity control measures, such as silt screens, will not be employed. Silt screens have proven to be impractical in riverine conditions with water depths and velocities that exist at the proposed placement site. Furthermore, dredged material of this particle size does not dictate the use of turbidity control measures.

b. **Effects on Biota.** Considering the short light penetration depths in the main channel, usable light for photosynthesis reaches depths of approximately 18 inches. Given the water velocities, unstable substrate, and light penetration levels of this main channel thalweg site, primary production by photosynthetic organisms is currently extremely low or nonexistent. Hence, impacts to the plant community will be negligible and insignificant. Main channel scour holes with unstable, homogeneous sand substrates with an absence of submerged structures exhibit low levels of biological activity; therefore, impacts to sight feeders and suspension/filter feeders will be insignificant and temporary. Fish species will be able to avoid the areas of high suspended solids concentrations.

c. **Action Taken to Minimize Impacts.** Dredging quantities will be kept to the minimum amount necessary to maintain the 9-foot navigation channel.

CONTAMINANT DETERMINATIONS

The sandy material to be dredged is of large enough particle size so that contaminant binding is negligible. Historically, sediment sampling of sandy dredged material has shown an insignificantly low level of

contamination, since contaminants have a greater affinity for smaller-sized particles.

AQUATIC ECOSYSTEM and ORGANISMIC DETERMINATIONS

a. **Effects on Plankton and Nekton.** Only short-term and minimal impacts are anticipated. The thalweg is not rich biologically. However, on the periphery of and paralleling the thalweg on the Illinois side of the river is a line of submerged bank protection (riprap). This type of structure can and does serve as microhabitat for fish and invertebrates to escape the current, particularly in the winter. If dredged material migrates to this structure, and residency time of the dredged material is such that these rocks are covered over winter, habitat value will be lost until high water events return the thalweg to pre-placement elevations. Dredging will be scheduled around the spring spawning season and the larval drift season.

b. **Effects on Benthos.** (See "Physical Substrate Determinations, d. Physical Effects on Benthos".) The benthic community is dynamic and possesses a high adaptability to sediment deposition.

c. **Effects on Aquatic Food Web.** Given the general low contamination levels associated with sandy dredged material, no significant impacts are anticipated to any life stage of any benthic species. Further, the proposed action will not cause or establish the proliferation of any undesirable competitive species that may usurp resident species. No significant reduction or elimination of any food chain organism will occur if this placement site is used.

d. **Effects on Special Aquatic Sites.** There are no refuges, wetlands, mud flats, vegetated shallows, coral reefs, or riffle and pool complexes in the project area.

Every attempt will be made to avoid placing the dredged material on the submerged bank protection mentioned earlier. The mussel bed at approximate RM 561.5 will be avoided.

e. **Threatened and Endangered Species.** Coordination with the States of Illinois and Iowa and with the U.S. Fish and Wildlife Service revealed that the use of the thalweg for dredged material placement at this location will not affect any threatened or endangered species. Monitoring of the dredged material movement will occur both during and after the dredging operation to determine potential impacts and the future suitability of this placement method at this location.

f. **Other Wildlife.** The dredging operation, if possible, will be scheduled to avoid the fall waterfowl migration period. This will avoid conflicts with resident and transient waterfowl and the associated recreational pursuit of duck/goose hunting.

g. **Actions Taken to Minimize Impacts.** Concurrent and post-placement sediment monitoring, avoidance of the spring spawning season, and avoidance of the fall waterfowl migration period will prevent impacts to fish spawning activities and waterfowl and waterfowl hunters.

Attempts will be made to prevent dredged material migration into the submerged rock bank protection on the edge of the thalweg. Post-placement bathymetric surveys will help determine if dredged material does migrate there. If migration does occur, the suitability of thalweg placement will be reevaluated.

PROPOSED PLACEMENT SITE DETERMINATIONS

a. **Mixing Zone Determinations.** Description of the discharge plume and settling rates as they pertain to turbidity and suspended particulates is described under "Effects on Physical and Chemical Properties of the Water Column."

Contaminants were discussed previously under "Contaminant Determinations."

The large volumetric capacity of this scour hole will provide a more than adequate mixing zone for any contaminated sediments that may be present. As mentioned earlier, most contaminants have affinities for finer sediments than are found at either the dredge cut or the placement location.

b. **Determination of Compliance with Applicable Water Quality Standards.** Section 401 Water Quality certification, in compliance with the Clean Water Act, is covered under an existing water certification permit from the State of Illinois (Appendix A).

c. **Potential Effects on Human-Use Characteristics.** Implementation of the proposed project will have no significant adverse effect on municipal or private water supplies; recreational or commercial fisheries; water related recreation or aesthetics; parks; national monuments; or other similar preserves. Any impacts will be short-term and minimal.

DETERMINATION OF CUMULATIVE EFFECTS ON THE AQUATIC ECOSYSTEM

Utilization of the thalweg at this location for dredged material placement will cause only minor and short-term impacts to any component of the aquatic ecosystem.

If dredged sand covers the submerged rock bank protection on the Illinois side of the channel, habitat value could be lost temporarily for fish and invertebrates. Habitat unit losses will continue until the thalweg is scoured to pre-placement elevations. Fall rainfall, winter snowfall, and

spring rainfall will help determine the intensity, duration, and frequency of high water events. These events will establish the residency time of the dredged material at the placement site.

DETERMINATION OF SECONDARY EFFECTS ON THE AQUATIC ECOSYSTEM

Keeping the dredged sand in the thalweg eliminates impacts to more biologically productive and politically sensitive areas, such as main channel borders, backwaters, and wetlands.

No other secondary effects on the aquatic ecosystem are anticipated. This determination is subject to reevaluation if warranted by Federal, State, or local agency comment, as well as input from the general public.

SECTION 3 - FINDINGS OF COMPLIANCE OR NONCOMPLIANCE WITH THE RESTRICTIONS ON PLACEMENT

1. No significant adaptations of the 404(b)(1) guidelines were made relative to this evaluation.

2. Alternatives which were considered in addition to the proposed action were as follows:

a. No action

b. Beneficial use

c. Terrestrial placement

3. Certification under Section 401 of the Clean Water Act has been obtained from the Illinois Environmental Protection Agency. The project thus will be in compliance with the water quality requirements of the State of Illinois.

4. The project will not introduce toxic substances into the waters of the United States or result in appreciable increases in existing levels of toxic materials.

5. No significant impact to federally listed endangered or threatened species is anticipated from this project.

6. The project is located along a freshwater inland river system. No marine sanctuaries are involved or will be affected.

7. No municipal or private water supplies will be affected. There will be no adverse impacts to recreational or commercial fishing. No significant adverse changes to the ecology of the river system will result from this action.

8. Because no construction materials will be used in this project, no contamination of the river is anticipated.

9. No other practical alternatives have been identified. The proposed actions are in compliance with Section 404(b)(1) of the Clean Water Act, as amended. The proposed actions will not significantly impact water quality and will improve the integrity of an authorized navigation system.

_____

Date

Albert J. Kraus
Colonel, U.S. Army
District Engineer

DISTRIBUTION LIST

APPENDIX C

HONORABLE ALAN J DIXON
3996 KLUCZYNSKI FEDERAL BLDG
CHICAGO IL 60604

UNITED STATES SENATOR
230 SOUTH DEARBORN ST

HONORABLE ARTHUR TENHOUSE
RR #3

ILLINOIS REPRESENTATIVE
LIBERTY IL 62347

HONORABLE CHARLES E. GRASSLEY
135 HART SENATE OFFICE BLDG

UNITED STATES SENATE
WASHINGTON DC 20510-1501

HONORABLE GARY HANNIG
700 NORTH HARD ROAD
BENLD IL 62009

ILLINOIS REPRESENTATIVE
P O BOX A

HONORABLE JIM EDGAR
STATE CAPITOL

GOVERNOR OF ILLINOIS
SPRINGFIELD IL 62706

HONORABLE JIM NUSSLE
P.O. BOX 478

REPRESENTATIVE IN CONGRESS
DUBUQUE IA 52001-0478

HONORABLE JOHN W COX JR
308 W STATE ST

REPRESENTATIVE IN CONGRESS
ROCKFORD IL 61101

HONORABLE LAURA KENT DONAHUE
634 MAINE STREET

ILLINOIS SENATOR
QUINCY IL 62301-3708

HONORABLE PAUL SIMON
SUITE 1
SPRINGFIELD IL 62701

UNITED STATES SENATOR
3 WEST OLD CAPITAL PLAZA

HONORABLE PAUL SIMON
8787 STATE STREET-SUITE 212

UNITED STATES SENATOR
EAST ST LOUIS IL 62203

HONORABLE TERRY BRANSTAD
STATE CAPITOL

GOVERNOR OF IOWA
DES MOINES, IA 50319

HONORABLE TOM HARKIN
733 FEDERAL BUILDING
DES MOINES IA 50309

UNITED STATES SENATOR
210 WALNUT STREET

HONORABLE TOM HARKIN
880 LOCUST STREET - SUITE 125

UNITED STATES SENATOR
DUBUQUE IA 52001

HONORABLE VINCE DEMUZIO
237 E 1ST NORTH

ILLINOIS SENATOR
CARLINVILLE, IL 62626

ALBERT ETTINGER 401 NORTH MICHIGAN AVENUE CHICAGO IL 60611	SIERRA CLUB SUITE 2700	Dist/Copies
ALVINA STILLMUNKES BELLEVUE IA 52031	RR 2	Dist/Copies
AMBROSE AND VIOLA HOFFMAN GALENA, IL 61036	115 1/2 N. MAIN ST.	Dist/Copies
ARLYN PICKEN BELLEVUE IA 52031	405 N 4TH	Dist/Copies
ARNOLD MCDOWELL EAST DUBUQUE, ILLINOIS 61025	MID TOWN MARINA	Dist/Copies
BELLEVUE HERALD-LEADER	BELLEVUE, IOWA 52031	Dist/Copies
BEN B STANEK BELLEVUE IA 52031	RR 2 - BOX 21	Dist/Copies
BERNARD P KILLIAN - DIRECTOR 2200 CHURCHILL ROAD	IL ENVIRONMENTAL PROTECTION AGENCY SPRINGFIELD IL 62706	Dist/Copies
BOARD OF SUPERVISORS MAQUOKETA, IOWA 52060	JACKSON COUNTY COURT HOUSE	Dist/Copies
BOB SHEETS MAQUOKETA, IOWA 52060	COURTHOUSE	Dist/Copies
CARL A. KERN GALENA, IL 61036	301 FRANKLIN ST.	Dist/Copies

CAROLYN RAFFENSPERGER 506 SOUTH WABASH CHICAGO IL 60605	SIERRA CLUB SUITE 525	Dist/Copies
CHAIRMAN SAVANNA, IL 61074	SAVANNA & YORK DRAINAGE DST.	Dist/Copies
CHAMBER OF COMMERCE SAVANNA, IL 61074	407 MAIN ST.	Dist/Copies
CHARLES G SCHROEDER BELLEVUE IA 52031	RR 2 - PO BOX 109	Dist/Copies
CHARLES H AIRD EAST DUBUQUE IL 61025	22 NORTH JFK ROAD	Dist/Copies
CHARLES H WEIGAND SAVANNA IL 61074	13510 W DIEHL RD	Dist/Copies
CHARLES H. AND DORIS J. REDDIN BELLEVUE, IA 52031	P. O. BOX 28	Dist/Copies
CHARLES WHITMORE SOIL CONSERVATION SERVICE CHAMPAIGN IL 61820	STATE CONSERVATIONIST 1902 FOX DRIVE	Dist/Copies 2
CLAIRE M ULTSCH BELLEVUE IA 52031	RR 2 - BOX 29	Dist/Copies
CLARK YARBROUGH EAST DUBUQUE, ILLINOIS 61025	1162 HIAWATHA DRIVE	Dist/Copies
CLIFFORD M. AND HELEN M. CARROLL GALENA, IL 61036	605 MCBREAMS LANE	Dist/Copies

COMMANDER ATTN: NCDPD CHICAGO, IL 60605	US ARMY ENGR DIVISION, N. CENTRAL 536 SOUTH CLARK ST.	Dist/Copies
COMMANDER NORTH CENTRAL CHICAGO IL 60606-7206	US ARMY ENGINEER DIVISION 111 N CANAL - 12TH FLOOR	Dist/Copies
COMMANDER D ANDERSON SECOND COAST GUARD DISTRICT ST LOUIS MO 63101	DEPARTMENT OF TRANSPORTATION 1430 OLIVE STREET	Dist/Copies
CONNIE R. WIENEN GALENA, IL 61036	RR 2	Dist/Copies
COUNTY ATTORNEY EAST DUBUQUE, IL 61025	JO DAVIESS COUNTY COURT HOUSE	Dist/Copies
COUNTY ATTORNEY MAQUOKETA, IA 52060	JACKSON COUNTY COURT HOUSE	Dist/Copies
COUNTY CLERK GALENA IL 61036	JO DAVIESS COUNTY COURT HOUSE	Dist/Copies
COUNTY CLERK MAQUOKETA, IA 52060	JACKSON COUNTY COURT HOUSE	Dist/Copies
COUNTY ENGINEER EAST DUBUQUE, IL 61025	JO DAVIESS COUNTY COURT HOUSE	Dist/Copies
DALE L PAULSEN EAST DUBUQUE IL 61025	810 HARBOR DR	Dist/Copies
DAN SALLEE STREAMS PROGRAM 61231 ALEDO, ILLINOIS 61231	ILLINOIS DEPT OF CONSERVATION PO BOX 149	Dist/Copies

DAVID CROSSON, SHPO CAPITOL COMPLEX DES MOINES, IOWA 50319	ADMIN, STATE HIST SOCIETY OF IOWA EAST 6TH AND LOCUST STREET	Dist/Copies
DAVID V & SUSAN K VALANT BELLEVUE IA 52031	RR 2 - BOX 26	Dist/Copies
DELOSS ALLEN GALENA, IL 61036	104 1/2 S. MAIN ST.	Dist/Copies
DEPT OF NATURAL RESOURCES BELLEVUE FISHERIES STATION BELLEVUE IA 52031	ATTN TOM BOLAND ROUTE 3 - BOX 160	Dist/Copies
DIRECTOR REGION VII KANSAS CITY MO 64106	FEDERAL EMERGENCY MANAGEMENT AGENCY 911 WALNUT STREET - ROOM 300	Dist/Copies
DIRECTOR IL DEPT OF AGRICULTURE SPRINGFIELD IL 62706	BUREAU OF SOIL & WATER CONS EMERSON BLDG-IL ST FAIRGROUNDS	Dist/Copies
DIRECTOR DIVISION OF COMMUNITY PROGRESS	IOWA DEPT OF ECONOMIC DEVELOPMENT DES MOINES, IOWA 50319	Dist/Copies
DISTRICT ENGINEER ATTN CENCS-PD/CHUCK WORKMAN ST PAUL MN 55101	US ARMY ENGINEER DISTRICT-ST PAUL 1421 USPO & CUSTOMHOUSE	Dist/Copies
DIVISION ADMINISTRATOR 3250 EXECUTIVE PARK DRIVE SPRINGFIELD IL 62703-4514	FEDERAL HIGHWAY ADMIN	Dist/Copies
DON FELDERMAN BELLEVUE IA 52031	RIVERSIDE ADDITION	Dist/Copies
DONALD AND VIVIAN ACHEN BELLEVUE, IA 52031	R. R. 1	Dist/Copies

DONALD LAREY GALENA, IL 61036	R. R. 2	Dist/Copies
DONALD VONNAHME - DIRECTOR 3215 EXECUTIVE PARK DRIVE SPRINGFIELD IL 62794-9484	DEPT OF TRANS-DIV OF WATER RESOURCES PO BOX 19484	Dist/Copies
DOT COORDINATOR (G-WS/TP 11) WASHINGTON, DC 20593	US DEPT OF TRANSPORTATION 2100 SECOND STREET SW	Dist/Copies
DOUG DUFFORD DEARBORN HALL MT CARROLL IL 61053	IL DEPT OF CONSERVATION 205 EAST SEMINARY ST	Dist/Copies
DR ALLAN HIRSCH - DIRECTOR US ENVIRONMENTAL PROTECTION AGENCY WASHINGTON DC 20460	OFFICE OF FEDERAL ACTIVITIES (A-104) 401 M STREET SW	Dist/Copies
DR MANLY MICHAELSON BELLEVUE IA 52031	139 RIVERSIDE	Dist/Copies
DR MICHAEL DEVINE-SHPO PRESERVATION SERVICES DIVISION SPRINGFIELD IL 62701	IL HISTORIC PRESERVATION AGENCY OLD STATE CAPITOL BLDG	Dist/Copies
EDWARD C. LINK GALENA, IL 61036	334 FRANKLIN ST.	Dist/Copies
EDWARD F. BRENDEL GALENA, IL 61036	321 SOUTH ST.	Dist/Copies
ELMO AND MARY ELLEN WELP GALENA, IL 61036	231 DIAGONAL ST.	Dist/Copies
EVELYN QUINLAN BELLEVUE, IA 52031	R. R. 3, BOX 51 A	Dist/Copies

EXECUTIVE VICE-PRESIDENT 1851 WELLSLEY AVE.	UPPER MISSISSIPPI WATERWAY ASSOC. MINNEAPOLIS, MN 55105	Dist/Copies
FLOYD L DANIELS BELLEVUE IA 52031	125 RIVERSIDE ADDITION	Dist/Copies
FREDERICK D. WEIS GALENA, IL 61036	106 N. DODGE	Dist/Copies
GARY MULGREW EAST DUBUQUE IL 61025	31 SINSINAWA AVE	Dist/Copies
GEORGE D. HOWARTH GALENA, IL 61036	R. R. 2, BOX 54 A	Dist/Copies
GEORGE E GOODENOW BELLEVUE IA 52031	RR 3 - BOX 180	Dist/Copies
H. F. MCCOY GALENA, IL 61036	704 PARK AVE.	Dist/Copies
HAROLD J. LAREY GALENA, IL 61036	1110 HILL ST.	Dist/Copies
HARVEY L LUND BELLEVUE IA 52031	RR 2 - RIVERSIDE ADDN	Dist/Copies
HOLLY STOERKER 415 HAMM BUILDING ST PAUL MN 55102	UPPER MISS RIVER BASIN ASSN 408 ST PETER STREET	Dist/Copies
IOWA CAHPTER, WILDLIFE SOCIETY CLEAR LAKE, IOWA 50428	1204 NORTH SHORE DRIVE	Dist/Copies

ISLAND CITY HARBOR, INC. SABULA, IA 52070	P. O. BOX 351	Dist/Copies
JACKSON COUNTY CONSERVATION BOARD MAQUOKETA, IOWA 52060	JACKSON COUNTY COURTHOUSE	Dist/Copies
JAMES A SUFFICOOL BELLEVUE IA 52031	129 RIVERSIDE ADDN	Dist/Copies
JAMES C SLIFER ATTN BUREAU OF PLANNING SPRINGFIELD IL 62706	IL DEPT OF TRANSPORTATION 126 E ASH STREET	Dist/Copies
JAMES F SWEENEY SAVANNA IL 61074	630 VAIDUCT ROAD	Dist/Copies
JANE ELDER 214 N HENRY ST SUITE 203	THE SIERRA CLUB MADISON WI 53703	Dist/Copies
JEFFREY A BERG SAVANNA IL 61074	PO BOX 234	Dist/Copies
JIM LENNARTSON 51 EAST 4TH STREET, ROOM 101	US FISH AND WILDLIFE SERVICE WINONA, MN 55987	Dist/Copies
JIMMY L. AND JANICE M. COULSON EAST DUBUQUE, IL 61025	725 BASTEN ROAD	Dist/Copies
JO DAVIES COUNTY CONSERVATION BOARD EAST DUBUQUE, ILLINOIS 61025	JO DAVIES COUNTY COURTHOUSE	Dist/Copies
JOE AND EVELYN MARTIN MAQUOKETA, IA 52060	121 N. OTTO ST.	Dist/Copies

JOHN A. AND MARY A. GREIBE GALENA, IL 61036	401 GEAR ST.	Dist/Copies
JOHN A. GERDES SAVANNA, IL 61074	711 N. 4TH ST.	Dist/Copies
JOHN A. MYERS GALENA, IL 61036	601 S. MAIN ST.	Dist/Copies
JOHN HOYER SABULA, IA 52070	BOX 324	Dist/Copies
JOHN LYONS P O BOX 460	U S FISH AND WILDLIFE SERVICE MC GREGOR IA 52157	Dist/Copies
JOHN MCEVOY EAST DUBUQUE, ILLINOIS 61025	MARINA CITY PLACE	Dist/Copies
JON DUYVEJONCK CONSERVATION COMMITTEE ROCK ISLAND IL 61201	UPPER MISSISSIPPI RIVER 4469 48TH AVENUE COURT	Dist/Copies
JOSEPH O. STOFFREGEN GALENA, IL 61036	304 SUMMIT	Dist/Copies
JUDY WEIGERT EAST DUBUQUE, ILLINOIS 61025	406 PEACH	Dist/Copies
KENNETH BENDER EAST DUBUQUE, IL 61025	BASTEN ROAD, SHORE ACRES	Dist/Copies
KENNETH GLANVILLE STOCKTON, IL 61085	108 S. MAIN	Dist/Copies

LARRY A. WARGOWOSKY POST OFFICE BUILDING	UMR NATIONAL WILDLIFE & FISH REFUGE SAVANNA, ILLINOIS 61074	Dist/Copies
LARRY WILSON, DIRECTOR WALLACE STATE OFFICE BUILDING DES MOINES, IOWA 50319	IOWA DEPARTMENT OF NATURAL RESOURCES 900 EAST GRAND AVENUE	Dist/Copies 3
LAVERNE BEYER STOCKTON IL 61085	215 W HIGH	Dist/Copies
LAVERNE O. AND NORMAN L. MUEHLIP GALENA, IL 61036	1202 HILL ST.	Dist/Copies
LEROY AND ARLIE ARNO SAVANNA, IL 61074	BOX 102, 11 CHERRY STREET	Dist/Copies
LEROY AND LOIS CLAYTON SAVANNA, IL 61074	1722 RTE 84 SOUTH	Dist/Copies
LEROY J. WIENEN GALENA, IL 61036	RR 2, BOX 61	Dist/Copies
LESLIE N BLITGEN BELLEVUE IA 52031	503 SPRING ST	Dist/Copies
LEWIS WACHTER AND BILL KAUFMAN GALENA, IL 61036	R. R. 1	Dist/Copies
LLOYD D KELLY BELLEVUE IA 52031	RR 2 - BOX 32	Dist/Copies
LOCKMASTER BELLEVUE, IA 52031	LOCK & DAM 12	Dist/Copies

LOYAL L SCHREINER SAVANNA IL 61074	516 N 4TH ST	Dist/Copies
M J MACCHIO - BUREAU CHIEF BUREAU OF LOCATION & DEVELOPMENT SPRINGFIELD IL 62764	DEPARTMENT OF TRANSPORTATION 2300 SOUTH DIRKSEN	Dist/Copies
MAQUOKETA NEWSPAPERS MAQUOKETA IA 52060	108 W QUARRY	Dist/Copies
MAYOR SABULA, IA 52070	CITY HALL	Dist/Copies
MAYOR & CITY COUNCIL EAST DUBUQUE, IL 61025	CITY HALL	Dist/Copies
MAYOR & CITY COUNCIL GALENA, IL 61036	CITY HALL	Dist/Copies
MAYOR & CITY COUNCIL BELLEVUE, IA 52031	CITY HALL	Dist/Copies
MAYOR & CITY COUNCIL SAVANNA, IL 61074	CITY HALL	Dist/Copies
MICHAEL A CLEMENS BELLEVUE IA 52031	RR 2 - BOX 31	Dist/Copies
MICHAEL T NESBITT SAVANNA IL 61074	18 MULBERRY ST	Dist/Copies
MID-TOWN MARINA ENTERPRISES, INC. EAST DUBUQUE, IL 61025	MARINA CITY PLACE	Dist/Copies

MORRIS KAY US ENVIRON PROT AGENCY-REG VII KANSAS CITY KS 66101	ADMINISTRATOR 726 MINNESOTA AVE	Dist/Copies 3
MR G BRENT MANNING-DIRECTOR LINCOLN TOWER PLAZA SPRINGFIELD IL 62701-1787	ILLINOIS DEPT OF CONSERVATION 524 SOUTH 2ND STREET	Dist/Copies 3
MRS JOE MARTIN MAQUOKETA IA 52060	121 N OTTO ST	Dist/Copies
OFFICE OF ENVIRONMENTAL PROJ REVIEW MS 4239-MIB WASHINGTON DC 20240	DEPARTMENT OF INTERIOR 18TH & C STREETS NW	Dist/Copies 12
PAT HAYES ST DONATUS IA 52071	BOX 26	Dist/Copies
PAUL C CHAPLIN BELLEVUE IA 52031	PO BOX 83	Dist/Copies
PAUL HANSEN MISSISSIPPI VALLEY REGNL OFFICE MINNEAPOLIS MN 55424	IZAAK WALTON LEAGUE 5701 NORMANDALE RD-SUITE 210	Dist/Copies
PUBLIC AFFAIRS OFFICE SAVANNA, IL 61074	SAVANNA ARMY DEPOT	Dist/Copies
RADIO STATION WCCI SAVANNA IL 61074	PO BOX 310	Dist/Copies
RAYMOND P. SCHMID GALENA, IL 61036	R. R. 2	Dist/Copies
REGIONAL DIRECTOR FEDERAL BLDG FORT SNELLING	U.S. FISH AND WILDLIFE SERVICE TWIN CITIES MN 55111	Dist/Copies

REGIONAL DIRECTOR NATIONAL PARK SVC-MIDWEST REGN OMAHA NE 68102	US DEPT OF INTERIOR 1709 JACKSON STREET	Dist/Copies
REGIONAL FORESTER US DEPT OF AGRICULTURE MILWAUKEE WI 53203	FOREST SERVICE 310 W WISCONSIN AVE-SUITE 500	Dist/Copies 2
RICHARD AND RUTH MCGINNIS SAVANNA, IL 61074	R.R. #2	Dist/Copies
RICHARD C. BAUTSCH GALENA, IL 61036	R. R. 2, BOX 53	Dist/Copies
RICHARD NELSON - FIELD SUPRVR 4469 48TH AVENUE COURT	U.S.FISH & WILDLIFE SERVICE ROCK ISLAND IL 61201	Dist/Copies
ROBERT E. BENDER EAST DUBUQUE, IL 61025	79 SINSINAWA AVE.	Dist/Copies
ROBERT E. MARSDEN GALENA, IL 61036	510 DEWEY AVENUE	Dist/Copies
ROBERT L KNUTH SAVANNA IL 61074	13501 DIEHL ROAD	Dist/Copies
ROBERT L KNUTH SAVANNA IL 61074	13501 DIEHL ROAD	Dist/Copies
ROBERT L MARTIN SAVANNA IL 61074	13504 W DIEHL ROAD	Dist/Copies
ROBERT P. AND BETTY M. FLUHR EAST DUBUQUE, IL 61025	EAST DUBUQUE BOAT HARBOR	Dist/Copies

ROBERT SCHANZLE IL DEPT OF CONSERVATION SPRINGFIELD IL 62701-1787	DIV OF PLANNING AND INFORMATION 605 STRATTON OFFICE BLDG	Dist/Copies
ROBERT W WAGNER ET UX BELLEVUE IA 52031	RR 2 - BOX 24	Dist/Copies
ROBERT W. BLUM GALENA, IL 61036	702 FRANKLIN ST.	Dist/Copies
ROGER W EHRLER BELLEVUE IA 52031	RR 3 - BOX 87	Dist/Copies
ROGER W EHRLER BELLEVUE IA 52031	RR 2 - BOX 87	Dist/Copies
RONALD L BULL SAVANNA IL 61074	2107 S ASHBY ROAD	Dist/Copies
SAVANNA BOAT CLUB SAVANNA, IL 61074	PO BOX 333	Dist/Copies
SAVANNA PARK DISTRICT SAVANNA IL 61074	PO BOX 329	Dist/Copies
SAVANNA TOWNSHIP PUBLIC LIBRARY SAVANNA, IL 61074	326 3RD ST.	Dist/Copies
SHERWOOD H. WILLIS STOCKTON, IL 61085	R. R. 3	Dist/Copies
STAFF FORESTER DIV OF FORESTRY, CONSV AREA SPRINGFIELD, IL 62707	IL DEPT OF CONSERVATION RR5	Dist/Copies

STATE ARCHEOLOGIST IOWA CITY, IOWA 52240	EAST LAWN BUILDING	Dist/Copies
THE JACKSON SENTINEL	MAQUOKETA, IOWA 52060	Dist/Copies
THE TIMES-JOURNAL SAVANNA IL 61074	419 MAIN	Dist/Copies
THOMAS H. DOBSON HANOVER, IL 61041	R. R. 1	Dist/Copies
VALDAS J ADAMKUS - ADMINISTRATOR 230 S DEARBORN ST	US ENVIRONMENTAL PROTECTION AGCY CHICAGO IL 60604	Dist/Copies 3
VIRGIL AND NORMA JEAN TYLER SAVANNA, IL 61074	618 EATON STREET	Dist/Copies
WAYNE VANVLECK SAVANNA IL 61074	525 3RD ST #302	Dist/Copies
WELDON C. LAREY GALENA, IL 61036	R. R. 2	Dist/Copies
WILLIAM C FUCIK - DIRECTOR REGION V CHICAGO IL 60604	FEDERAL EMERGENCY MANAGEMENT AGENCY 175 W JACKSON BLVD - 4TH FLOOR	Dist/Copies

DISTRIBUTION -- INTERNAL

COMMANDER, US ARMY ENGINEER DISTRICT, ROCK ISLAND, CLOCK TOWER BUILDING, ROCK ISLAND, ILLLINOIS 61204-2004

ATTN: CENCR-DE
CENCR-RE
CENCR-ED
CENCR-ED-C
CENCR-ED-D
CENCR-ED-DE (WILHITE)
CENCR-ED-DG
CENCR-ED-H
CENCR-PA
CENCR-PD (2)
CENCR-PD-C
CENCR-PD-E
CENCR-PD-W
CENCR--CD
CENCR-OD
CENCR-OD-R (SOME REPORTS)
CENCR-OD-S
CENCR-IM-CL (2)